



**Contract No. RTA/RP 0119-17 Systems Integrator for next generation ORCA
INIT Innovations in Transportation, Inc.**

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VOLUME 2 OF 2:

CONTRACTOR'S NEGOTIATED PROPOSAL SUBMITTAL

- Final negotiated price sheet dated August 29,2018
- Proposal Addendum No. 2 dated August 17, 2018
- Proposal Addendum No. 1 dated July 23, 2018
- Revised Proposal dated June 8, 2018



Contract No. RTA/RP 0119-17 Systems Integrator for next generation ORCA
INIT Innovations in Transportation, Inc.
VOLUME 1 OF 2

SECTION 00 – AGREEMENT FORM

THIS AGREEMENT between CENTRAL PUGET SOUND REGIONAL TRANSIT AUTHORITY (“Sound Transit” as defined in the Definitions section of this Agreement), and INIT INNOVATION IN TRANSPORTATION, INC., hereinafter called the "Contractor" agree as follows:

The Contractor, for the consideration specified in the Contract Documents, shall in strict accordance therewith perform all the activities required by the Contract Documents for the following project:

SYSTEMS INTEGRATOR FOR NEXT GENERATION ORCA
Contract No. RTA/RP 0119-17

Sound Transit agrees to pay the Contractor for fulfillment of the Work and performance of the covenants set forth the Contract Documents.

The Contract Documents consist of the documents listed below issued prior to execution of this Contract Agreement and all Change Orders issued subsequent to execution of this Contract Agreement. The following is an enumeration of the documents, not in their order of precedence:

- Change Orders
- This Agreement Form
- Addenda, issued for RFP No. RTA/RP 0119-17
- RFP No. RTA/RP 0119-17
- Contractor’s Negotiated Proposal Submittal
- Systems General Conditions
- All other Agreement Sections

Such Contract Documents form the Contract and all are as fully a part of the Contract as if attached to this Contract Agreement or repeated herein.

The Contractor agrees to complete the Work, furnish all tools, materials, facilities, and equipment necessary on the terms and conditions specified in the Contract Documents. The Contractor further agrees to assume and perform all of the covenants and conditions required of the Contractor pursuant to these Contract Documents, for the total not-to-exceed Contract Price of **\$94,940,044.00**, plus applicable taxes.

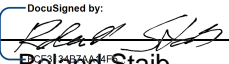
Except as expressly provided in the Contract Documents, no liability shall attach to Sound Transit by reason of entering into this Contract Agreement.




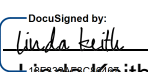
IN WITNESS WHEREOF, the parties have caused this Contract Agreement to be executed as of the dates indicated below.

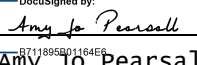
INIT Innovations in Transportation, Inc.
(Contractor)

Central Puget Sound
Regional Transit Authority, on behalf of the
ORCA Agencies

By: 
Name: Roland Staib
Title: Chief Executive Officer
Date: 9/28/2018

By: 
Name: Michael Harbour
Title: Deputy Chief Executive Officer
Date: 10/2/2018

By: 
Name: Linda Reith
Title: Chief Financial Officer
Date: 9/28/2018

APPROVED AS TO FORM:
By: 
Name: Amy Jo Pearsall
Title: Legal Counsel

END OF FORM



SECTION 01 – SYSTEMS GENERAL CONDITIONS

ARTICLE 1 GENERAL

1.01 DEFINITIONS

- A. **Acceptance** – A written notice from Sound Transit to Contractor indicating full and satisfactory physical completion of specific Work or part of the Work including all physical Punch List work.
- B. **Addenda/Addendum** – Written modifications issued by Sound Transit to the Request for Proposals (RFP) that make changes to the Instruction to Proposers and /or Contract Documents.
- C. **As-Built Drawings** – Neatly and legibly marked set of Contract Drawings, maintained by the Contractor with up to date information, showing all Changes in the Work, including final locations of all items of Work.
- D. **Change** – A written alteration that modifies the scope of Work, equipment, materials, facilities, services, site, performance, schedule, or other material provision of the Contract.
- E. **Change Notice** – Request for Proposal (CN-RFP) - A written request by Sound Transit to the Contractor for a Cost and Schedule proposal for a Change to the Contract. A CN-RFP does not authorize the Contractor to commence performance of the changed Work
- F. **Change Notice** – Work Directive (CN-WD) - A written directive by Sound Transit to the Contractor to immediately proceed with a Change in the Work. Work Directives are incorporated into the Contract by a subsequent Change Order(s).
- G. **Change Order** – A signed written document that alters the scope of the Work, the Contract Time, the Contract Price, or makes any other change to the Contract.
- H. **Claim** – A written demand by the Contractor seeking (1) the payment of money or adjustment to the Contract Price; (2) an extension of Contract Time; (3) an adjustment of Contract terms; and /or, (4) other relief arising under or relating to this Contract.
- I. **Contract (aka "Agreement")** – Written agreement executed by Sound Transit and the Contractor which sets forth the rights and obligations of the parties in connection with the Work.
- J. **Contract Documents** – The Change Orders, Agreement Form with attachments,, General Conditions, Contract Specifications, Contract Drawings, Diversity Program Provisions, any materials referenced therein, and any other documents listed in the Contract as embodying the legally binding obligations between Sound Transit and the Contractor for completion of the Work.
- K. **Contract Drawings** – Plans, profiles, typical cross sections, general cross sections, elevations, schedules, and details listed or included in the Contract Documents.
- L. **Contract Milestone** – A date specified in the Contract by which the Contractor is required to complete a designated portion, delivery or increment of the Work.
- M. **Contract Price** – The amount payable to the Contractor under the terms and conditions of the Contract based on lump sum prices, unit prices, provisional sums, or combination thereof, with adjustments made in accordance with the Contract.
- N. **Contract Specifications** – The part of the Contract Documents containing written directions or requirements that specify the requirements which have to be fulfilled for the completion of the



Work.

- O. **Contract Time** – The time allotted in the Contract Documents for completion of the Work. The base term of the contract begins upon full execution of the Contract and ends in four years. At Sound Transit’s sole discretion, the contract may be extended for eleven (11) additional one year terms. Contract Time incorporates the Contract Milestones established for the Contract.
- P. **Contractor (aka “Consultant”)** – The person, persons, partnership, joint venture, company or corporation which enters into this Contract with Sound Transit for the performance of Work required by this Contract.
- Q. **Contractor's Project Manager** – Contractor's authorized representative designated to perform technical and administrative functions of this Contract, as designated in writing to Sound Transit.
- R. **Cost and Schedule Proposal** – A document prepared by the Contractor at the request of Sound Transit, which proposes in detail changes to the Work and/or adjustments to the Contract Price and/or Contract Time.
- S. **Critical Path** – The longest, continuous sequence of activities that begins at the start of the Contract (effective date contained in the Notice to Proceed) and concludes with the completion of the Contract Milestone(s). This path represents the longest chain of interrelated activities throughout the network from beginning to end. These activities are critical because delay to an activity on this path will extend the Contractor’s attainment of one or more Contract Milestone(s).
- T. **Days or days** – Calendar days, unless otherwise specified.
- U. **Defective Work** – Specific elements of the Work that do not conform to the requirements of the Contract and that will not be accepted by Sound Transit, at Sound Transit’s discretion.
- V. **Equitable Adjustment** – An adjustment to the Contract Price and / or Contract Time to compensate the Contractor for Extra Work, as part of a negotiated Change Order.
- W. **Equivalent** – Equal or better quality and performance to that specified in the Contract Documents.
- X. **Extra Work** – Furnishing of materials and equipment and the performance of Work neither directly nor by implication called for in the Contract Documents that is necessary for the Contractor’s timely completion of the Work through no fault, error, omission, negligence, neglect, lack of planning, or lack of diligence of the Contractor.
- Y. **Field Clarification** – a document prepared by Sound Transit and issued to the Contractor that clarifies and/or corrects minor discrepancies in the Contract Documents that do not affect the cost or schedule of the Work.
- Z. **Final System Acceptance** – Written notice from Sound Transit acknowledging that the Contractor has fulfilled all of its obligations under the Contract and that Sound Transit has accepted the Work as of the date stated in the Notice. Final System Acceptance is a condition precedent to Final Payment.
- AA. **General Conditions** – Sound Transit's standard general contractual provisions for contracts which, as augmented and supplemented by other Contract Documents, describe the contractual relationship of the parties and their rights and responsibilities to each other.
- BB. **Hazardous or Contaminated Substance** – (a) any substance, product, waste, or material of any nature whatsoever which is or becomes listed, regulated, or addressed pursuant to the



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- Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. Section 9601, et seq. ("CERCLA"); the Hazardous Materials Transportation Act, 49 U.S.C. Section 1801, et seq.; the Resource Conservation and Recovery Act, 42 U.S.C. Sections 6901, et seq. ("RCRA"); the Toxic Substances Control Act, 15 U.S.C. Sections 2601, et seq.; the Clean Water Act, 33 U.S.C. Sections 1251, et seq.; or any other federal, state, or local statute, law, ordinance, resolution, code, rule, regulation, order, or decree regulating, or imposing liability or standards of conduct concerning any hazardous, toxic, or dangerous waste, substance, or material, as now or any time thereafter in effect; (b) any substance, product, waste, or other material of any nature whatsoever that may give rise to liability under any of the above statutes or under any reported decision of a state or federal court; (c) petroleum or crude oil, excluding de minimus amounts; and (d) asbestos.
- CC. **Industry Standards** – Drawings and specifications or portions thereof published by industry organizations, which are not Contract Documents unless specifically listed as such in a Specification.
- DD. **Intellectual Property of Contractor** – All intellectual property owned, licensed, sub-licensed or otherwise transferred, wholly or partially to Contractor, Subcontractors, sub Subcontractors existing at the Effective date of the Contract shall be owned by the respective parties set forth in this definition and Sound Transit interest shall be limited by the terms of any license issued to Sound Transit.
- EE. **Milestone or Partial Payment Schedule** – The breakdown of the Contract Price into incremental performance stages or deliveries.
- FF. **Non-Conforming Work** – Specific elements of the Work that do not conform to the requirements of the Contract but that otherwise may be acceptable to Sound Transit, at Sound Transit's discretion.
- GG. **Notice** – Communication in writing, unless otherwise specified, which complies with the notice requirements of the Contract Documents, to provide or issue any information, warning, announcement, instruction, consent, approval, certificate or determination by any person or party to the Contract.
- HH. **Notice of Intent to Claim** - A written notice of a potential claim submitted by the Contractor to Sound Transit within the time limits and in accordance with the conditions specified in the Contract Documents.
- II. **Notice to Proceed** – Written notice delivered by overnight courier, issued by Sound Transit which, contains the effective date on which the Contractor may commence Work and directs the Contractor to proceed with all or a portion of the Work.
- JJ. **ORCA** – The regional fare collection system in which this contract is a part.
- KK. **ORCA Partner Agencies** – Any and all agencies that have entered into the interlocal cooperation agreement for design, implementation, operation and maintenance of the ORCA fare collection system, pursuant to the Interlocal Cooperation Act, chapter 39.24 RCW.
- LL. **Partial Payment** – Payment of a portion of the Contract Price before the contract is completed for delivery or performance in increments. Delivery and performance incremental stages are defined in the Milestone or Partial Payment Schedule.
- MM. **Product Data** – Information furnished by the Contractor to describe materials used for some portion of the Work, such as written or printed descriptions, illustrations, standard schedules,



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- performance charts, instructions, brochures, and diagrams.
- NN. **Project** – next generation ORCA Program’s Project, of which this Contract is a part.
- OO. **Project Schedule** – The schedule, prepared by the Contractor in accordance with the requirements of the Contract and accepted by Sound Transit, setting forth the logical sequence of activities required for the Contractor's orderly performance and completion of the Work in accordance with the Contract and specifically to meet the specified Contract Milestones.
- PP. **Proposal** – The written proposal submitted to Sound Transit as required by the Request for Proposals.
- QQ. **Proposal Documentation** – Any and all work papers, spreadsheets, takeoffs, material lists, subcontractor quotes, vendor or material quotes, lists of wage rates and equipment rates (both rented and owned) and any and all papers, documents and electronic information or computer files created or used by Contractor when preparing its Proposal.
- RR. **Proposer** – An individual, firm, partnership, corporation, joint venture or other legal entity submitting a proposal for the work.
- SS. **Provisional Sum or Allowance** - An amount established in the Contract Documents for inclusion in the Contract Price to cover the cost of prescribed items not specified in detail, with provision that variations between such amount and the finally determined cost of the prescribed items will be reflected in Change Orders appropriately adjusting the final Contract Price. Any amount included in the Contract Price but not used in the course of the Work shall be returned to Sound Transit by way of deductive Change Order.
- TT. **Punch List** – The list(s) of elements of the Work that remain to be completed or corrected after achievement of Substantial Completion of the Work or portions of the Work which must be completed as a condition of Acceptance.
- UU. **Reference Documents** – Drawings, specifications, and other documents that do not specify Work required by the Contract, but which provide supplemental information regarding the Contract.
- VV. **Reference Specifications** – Specifications prepared by or belonging to Utilities or third parties (including but not limited to other governmental bodies) in whose rights-of-way, easements or properties all or part of the Work is to be executed.
- WW. **Request for Information (RFI)** – The document by which the Contractor requests clarification, verification or information on a portion of the Work.
- XX. **Regional Program Manager** – Sound Transit's authorized representative designated to perform technical and administrative functions of this Contract.
- YY. **Safety Certification** – A formal process implemented to ensure that all Transit System facilities, equipment, and training programs conform to the established requirements. This includes reviewing and certifying items for compliance with operational safety requirements prior to the start of revenue service to ensure a safe operating Transit System.
- ZZ. **Safety Critical Item** – Any submittal, installation, inspection, or test identified in the Specification Conformance Checklist that has been determined by Sound Transit to have an impact on the safe operation of the transit system.



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- AAA. **Samples** – 1) Representative quantities of materials taken in specified amounts and frequencies for subsequent testing in accordance with specified procedures; or 2) physical examples of materials to be supplied or workmanship, which shall, when approved by Sound Transit, establish standards by which the Work shall be compared and evaluated.
- BBB. **Site (aka Project Site)** – The areas that are occupied by or used by the Contractor, Subcontractors, Consultants, Subconsultants during performance of the Work in the Puget Sound area of Washington, and are indicated in the Contract Documents as being within the project limits. This includes any areas outside the project limits, which are designated in writing by Sound Transit as being part of the Project Site. For purposes of the Contract Documents, and not for prevailing wage determinations, off-site precast factories/facilities will not be considered part of the Site.
- CCC. **Software System** – A term used for the ORCA system software, written programs or procedures, or rules, and associated documentation designed to perform an intended purpose and identified in the contract documents and requirements. This system may be made up of multiple software programs that are developed by Contractor and licensed to Sound Transit, and/or third party software applications.
- DDD. **Sound Transit** – The Central Puget Sound Regional Transit Authority. Sound Transit is the lead agency for next generation ORCA, and for the purpose of this Agreement and in any license related to this agreement, Sound Transit shall include all ORCA Partner Agencies.
- EEE. **[INTENTIONALLY OMITTED]**
- FFF. **Specification Conformance Checklist** – A document that provides evidence that the Sound Transit’s Rail Transit System will operate safely in accordance with safety critical requirements for documentation, installation, inspection and testing referenced in the Contract Specifications.
- GGG. **Subcontract** – Any Contract between the Contractor and a Subcontractor, or between Subcontractors of any tier, to perform a portion of the Work.
- HHH. **Subcontractor** – An individual, firm, partnership, or corporation that has a contractual obligation with a Consultant, Contractor or other Subcontractor to perform some part of the Work required for the completion of the Contract, and whose principals or employees are actively performing such Work at the Project Site.
- III. **Submittal** – Written or graphic document or sample that is required by the Contract Documents and is prepared for the Work by the Contractor, a Subcontractor or Supplier, and submitted to Sound Transit by the Contractor, including shop drawings, product data, samples, certificates, schedules of material or other data. Submittals are not Contract Documents.
- JJJ. **Substantial Completion** – The time at which the Work or a portion thereof has progressed to the point where it is sufficiently complete in accordance with the Contract Documents, so that the Work, or a specified portion thereof, can be utilized for the purpose for which it is intended.
- KKK. **Substitution** – An item of significant difference in material, equipment or configuration which functionally meets the requirements of the Contract Documents but does not meet the Specifications and is equivalent to the specified item.
- LLL. **Suppliers** – Any person, firm, partnership, corporation, joint venture, or combination thereof, other than a Subcontractor, contracting with the Contractor, either directly or through a lower-tiered contractual relationship, to furnish goods or services in connection with the Contract.



- MMM. **Technical Data** - Any plans, drawings, designs, specifications, technical reports, operating manuals, notes, data, documentation, and computer software (in source code and object code form), not specifically designated as Intellectual Property of the Contractor, which are required to be supplied as part of the Work.
- NNN. **Third Party Software** – Any software, firmware, or program reasonably necessary to operate or maintain any part of the System that does not constitute Contractor Software.
- OOO. **Termination Work Plan** – A plan that is developed after notice of termination for convenience, including a scope, schedule and budget to safely terminate the Contractor's progress of Work.
- PPP. **Unknown Hazardous and Contaminated Substances** – Hazardous or Contaminated Substances that were not indicated in the Contract Documents that were present on the Site, and that are unexpectedly encountered by the Contractor during the performance of the Work.
- QQQ. **Utility or Utilities** – All public and private facilities, other than the Sound Transit system facilities, which relate to 1) the conveyance and supply of water, sewage, gas, chemicals, steam, petroleum products, and other piped installations; or 2) electrical energy, telephone, telegraph communications, radio, television, and public transit installations.
- RRR. **Utility Standards** – Drawings and specifications for Utilities published or issued by municipalities or utility companies.
- SSS. **Work** – The requirements of the Contract as specified, shown, indicated or implied in the Contract Documents, including all alterations, amendments or extensions thereto made by Change Orders.

1.02 INTENT AND INTERPRETATION OF CONTRACT DOCUMENTS

- A. The intent of the Contract Documents is to describe the Work and completion of the Work. Where the Contract Documents describe portions of the Work in general terms, but not in complete detail, the Contractor shall use best practice as used by the electronic fare collection industry and, unless otherwise specified herein, Contractor shall use only materials and workmanship of best quality. Unless otherwise specifically stated in the Contract, the Contractor shall furnish, deliver, provide, and pay for all materials, labor, professional services, tools, equipment, water, light, power, heat, transportation, supervision, temporary Work of any nature, consumables, and other services and facilities of any nature, whatsoever necessary, to execute, complete and deliver the Work within the Contract Time. The Work shall be executed in strict conformance to the Contract requirements.
- B. The Contract Documents set forth the requirements as to the nature of the completed Work and do not purport to control the means and methods of performing Work, unless specifically set forth in the Contract Documents. The Contractor is wholly responsible for making its own decisions about the means and methods of performing the Work. If any references have been made in the Contract Documents to responsibilities of work by crafts and specialty or trade contractors, these references were made for the convenience of preparing the Contract Documents and are not intended to limit any responsibility of the Contractor to provide a complete installation under the Contract.

1.03 CONTRACT IS SUBJECT TO FEDERAL PROVISIONS

The Contract is partially funded by the Federal Transit Administration ("FTA") and/or the Federal Highway Administration ("FHWA") is therefore subject to certain federal provisions. Further, the FTA and FHWA



require that certain terms and conditions of the Contract Documents be included in all Subcontracts. The Contractor shall be responsible for ensuring all applicable mandatory Federal provisions are included in all Subcontracts. These mandatory Federal provisions are set forth in Section 02 Federal Provisions.

1.04 CONFORMITY TO CONTRACT DOCUMENTS

The Work in all cases shall conform to the Contract Documents or approved modifications thereto, and shall be within the tolerances specified, or, if no tolerance is specified, as determined by the Regional Program Manager.

1.05 ORDER OF PRECEDENCE

- A. The Contract Documents are intended to be complimentary and to describe and provide for a complete Work. They are also to be interpreted in harmony so as to avoid conflict, with words and phrases interpreted consistent with design industry standards. The documents identified below are listed in order of precedence. To the extent that there are different provisions in Contract Documents that address the same matter or subject and these different provisions conflict, the document having the highest priority that addresses the matter or subject shall control. If conflicting provisions within the same level of Contract Documents exist, and one is more stringent than another, the more stringent provision will prevail.
 - Change Orders (bilateral and unilateral), with the most recent taking precedence over earlier dated
 - Section 00 Agreement Form
 - Section 01 Systems General Conditions
 - Section 02 Federal Provisions
 - Section 07 Software License and Maintenance Agreements
 - Section 08 Contract Price Schedule
 - Section 09 Project Schedule
 - Section 04 Liquidated Damages
 - Section 10 Contractor's Negotiated Proposal Submittal with the most recent revised Proposal or Proposal Addendum taking precedence
 - Section 03 Insurance Requirements
 - Section 05 Labor Compliance Manual
 - Section 06 Prevailing Wage Rates
 - Addenda to RFP No. RTA/RP 0119-17
 - RFP No. RTA/RP 0119-17
 - Industry Standards, only when specifically incorporated into a Contract Scope of Work
 - Reference Specifications
 - Reference Drawings
- B. In case of differences between small and large-scale drawings, the large-scale drawings shall govern. Schedules on drawings shall take precedence over conflicting notations on drawings. In the event of discrepancy between any drawing and the figures written thereon, the figures, unless otherwise indicated, shall govern over-scaled dimensions.
- C. References to Industry Standards, material specifications, test methods, or other publications of the Washington Department of Transportation (WSDOT), American Association of State Highway and Transportation Officials (AASHTO), Federal Railroad Administration (FRA), American Association of Railroads (AAR), American Railroad Engineering and maintenance of Way Association (AREMA), Institute of Electrical and Electronic Engineers (IEEE), America Society



for Testing and Materials (ASTM), other governmental agencies, or other recognized national organizations are those officially adopted by those agencies and organizations. Industry Standards (if specifically incorporated by any Specification) apply only to material, workmanship and procedure. Commercial terms (e.g. Control of Work, Temporary Traffic Control, Legal Relations and Responsibilities to the Public, and Measurement and Payment) are not included in the reference. All material, equipment and workmanship specified by the number, symbol, or title of a referenced Industry Standard shall comply with the latest edition or revision thereof and all amendments and supplements thereto in effect on the date of the Request for Proposals, except where a particular edition or revision thereof is indicated in the reference.

1.06 REQUESTS FOR INFORMATION / FIELD CLARIFICATIONS

A. Request for Information

1. If the Contractor discovers, or in the exercise of reasonable diligence should have discovered, that the Work to be performed is not sufficiently detailed or explained in the Contract Documents, or that there is an apparent conflict or inconsistency between any part of the Contract Documents, the Contractor shall promptly apply a Request for Information in writing to the Regional Program Manager for such further written explanations as may be necessary. The Regional Program Manager will promptly address the RFI in writing. Before submitting a RFI, the Contractor shall diligently and thoroughly examine the Contract Documents. Costs incurred by Sound Transit to respond to RFIs which could have been avoided had the Contractor examined the Contract Documents shall be the responsibility of the Contractor. The Contractor shall also plan its Work in an efficient manner so as to allow for timely responses to RFIs. If requested by the Regional Program Manager, the Contractor shall prioritize its RFIs and explain the reasons for such priority. The Contractor's submission of an RFI shall be a condition precedent to a Contractor submitting a claim related to any conflict or inconsistency, and the Contractor's failure to apply to the Regional Program Manager for interpretation or clarification of any known conflict or inconsistency shall bar any subsequent claim related to the conflict or inconsistency. The Contractor's submission of an RFI does not fulfill the requirements of Article 10 for timely Notice of Intent to Claim or Notice of Delay and shall not constitute a Claim.
2. Sound Transit will reply to the RFI with reasonable promptness. If Contractor submits an RFI on an activity less than twenty (20) days prior to the commencement of that activity, Contractor shall not be entitled to any time extension or adjustment to the Contract Price due to the time it takes Sound Transit to respond to the RFI.
3. Responses by Sound Transit to RFIs are not changes to the Contract. If Contractor believes a response to an RFI constitutes changed work or causes an adverse impact to performance of the Work or schedule, the Contractor is required to submit a Request for Change in accordance with the requirements of Article 4.02.

B. Field Clarification

If Sound Transit identifies minor discrepancies in or a need to clarify information contained in the Contract Documents, Sound Transit may issue a Field Clarification to so correct the minor discrepancies or provide the clarification. Because Field Clarifications should not have any effect on the cost or time of performance of the Work, they do not provide for either a time extension or a change in the Contract Price. If Contractor believes that a Field Clarification constitutes



changed work for which a time extension or additional compensation is necessary, the Contractor is required to submit a Request for Change in accordance with the requirements of Article 4.02.

1.07 SITE INVESTIGATION AND CONDITIONS AFFECTING WORK

- A. By submitting its Proposal for the Work and executing the Contract, the Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the condition of the site itself, including without limitation the general and local conditions which can affect the work or its costs, including but not limited to local weather, traffic patterns, availability of labor, available utilities, local requirements, adequacy and accuracy of Contract Documents, the character of equipment and materials required to perform the Work, and conditions bearing upon utilities as relates to temporary or permanent relocation or installation thereof.
- B. The Contractor acknowledges that any equipment or site reports referenced in the Contract Documents are only intended to describe the conditions at a particular point in time, and are not guaranteed to represent the actual conditions the Contractor will encounter during the course of the Work. The Contractor acknowledges that it has satisfied itself as to the character, quality and quantity materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the equipment or site and information available to the Contractor in the Contract Documents or Reference Documents.
- C. Any failure of the Contractor to take actions described and acknowledged in this Article will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the Work, or for proceeding to successfully perform the Work without additional expense to Sound Transit.
- D. By submitting a Proposal for the Work and by executing the Contract, the Contractor certifies that it has carefully reviewed, has had clarified, and understands all of the Contract Documents; has inspected the equipment and site as needed to evaluate and assess all pertinent existing conditions applicable to the Work, and is satisfied as to its ability and intention to conduct and complete the Work required in the Contract Documents on the terms and conditions stated in the Contract. In particular, the Contractor certifies that it has reviewed the requirements for the format and detail of records to be maintained at all times during the performance of Work, and that it has instituted or will implement the preparation and maintenance of all such records. In particular, the Contractor represents as follows:
 - 1. It is familiar with and is satisfied as to all Federal, state and local laws and regulations that may affect the cost, progress, performance and furnishing of the Work;
 - 2. It has correlated with the Contract Documents the information known to the Contractor, information and observations obtained from visits to the site, and reports and drawings identified in the Contract Documents; and
 - 3. It has given Sound Transit written notice of all conflicts, errors, ambiguities or discrepancies that the Contractor has discovered in the Contract Documents and that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.



ARTICLE 2 AUTHORITY AND RESPONSIBILITY

2.01 CONTRACT IS BETWEEN CONTRACTOR AND SOUND TRANSIT

The Contractor is an independent contractor with respect to the performance of all Work hereunder, retaining control over the detail of its own operations and the Contractor shall not be considered the agent, partner, fiduciary or trustee of Sound Transit. The Contractor shall not conduct itself as nor claim to be an officer or employee of Sound Transit. The Contractor will not make any claim, demand or application to or for any right or privilege applicable to an officer or employee of Sound Transit, including, but not limited to, worker's compensation coverage, unemployment insurance benefits, social security coverage or retirement membership or credit. No employee of the Contractor or any Subcontractor is or shall be deemed to be an officer or employee of Sound Transit. Subcontractors to the Contractor will not be recognized as having a direct relationship with Sound Transit, nor are Subcontractors intended or incidental third-party beneficiaries to this Contract.

2.02 DUTY OF CONTRACTOR

- A. The Contractor has sole authority and responsibility to employ, discharge and otherwise control its employees and has complete and sole responsibility as a principal for its agents, for all Subcontractors and for all other persons that the Contractor or any Subcontractor hired to perform or assist in performing the Work.
- B. The Contractor shall enforce strict discipline and good order among its employees at all times and shall not employ on the Work any unfit person or anyone not skilled in the task assigned to him or her. Any person employed on the project by the Contractor or any of its Subcontractors who, in the opinion of Sound Transit, is not needed to perform assigned work, is not qualified or licensed, does not perform his or her work in a proper and skillful manner or is intemperate, disorderly, reckless, or engages in any abuse or harassment, shall, at the written request of Sound Transit, be removed forthwith by his or her employer, shall not again be employed on the project without the approval of Sound Transit, and shall at the Contractor's own expense be replaced by a suitably qualified person.

2.03 AUTHORITY OF REGIONAL PROGRAM MANAGER

- A. Sound Transit will designate a Regional Program Manager prior to or concurrent with Sound Transit's issuance of the Notice to Proceed. The Regional Program Manager is Sound Transit's point of contact for the Contractor. The Regional Program Manager shall have the authority to manage the Contract so that the completion thereof may be accomplished in accordance with the contractual requirements.
- B. The Regional Program Manager may designate technical support staff to perform functions under the Contract, such as inspection of the Work, review and/or inspection and acceptance of materials, supplies, services, witness of functional testing, and other functions of a technical or administrative nature.
- C. Sound Transit and the Regional Program Manager, or a designee, shall have access to the Site and the Work at all times. Should the performance of the Contractor, or the quality of the Contractor's work or materials furnished, not meet the standards specified, the Regional Program Manager may take or require such measures as the Regional Program Manager deems necessary to ensure compliance with contractual requirements. Any failure by the Regional Program Manager to take these actions shall not relieve Contractor from performing its Contract obligations. The Contractor shall carry out the instructions of the Regional Program Manager or



any person to whom the Regional Program Manager delegates authority and gives the Contractor written notice of said delegation, concerning the Work.

2.04 CONTRACTOR'S PROJECT MANAGEMENT AND SUPERVISION

- A. The Project Manager shall be Sound Transit's main point of contact for the Contractor. The Project Manager shall have the authority to manage the Contract, including engaging the necessary resources, so that the completion thereof may be accomplished in accordance with the contractual requirements. If for any reason and at any time, the Project Manager and/or Lead Engineer submitted by the Contractor is not acceptable to Sound Transit, or becomes unacceptable, the Contractor shall propose additional candidates within ten (10) days of receiving written notice from Sound Transit. If the Contractor wishes to replace its Project Manager or Lead Engineer at any time during the performance of this Contract, it first shall submit the résumé of its new candidate to Sound Transit for Sound Transit's approval, which shall not be unreasonably withheld or delayed. The Contractor shall not make the substitution without Sound Transit's prior written approval. Sound Transit shall have the right to require the Contractor to remove the Project Manager or Lead Engineer from the Project in the event either fails to uphold or meet the requirements of the Contract or fails to perform in a competent, qualified or professional manner. Failure by Sound Transit to remove such personnel shall not relieve Contractor of its Contract obligations.
- B. The Contractor's Project Manager, or a designee, shall be present at the site of the Work at all times while the Work is actually in progress. The Contractor's Project Manager shall notify the Regional Program Manager of the name(s) and means to contact the individual(s) who have the authority to act for the Contractor's Project Manager at such times that the Contractor's Project Manager is not present on any particular part of the Work. In the absence of such notification, the Regional Program Manager may give direction to the superintendent or foreman in charge of the particular part of the Work in reference to which the directions are given so long as said directions are confirmed by the Regional Program Manager in writing to the Contractor's Project Manager.
- C. The Contractor was awarded the Contract due in part to the Contractor's submittal of qualifications for key personnel (Project Manager and Lead Engineer). Contractor's failure to use such key personnel after award of the Contract shall (subject to the exception in Article 2.04D) constitute a breach of Contract entitling Sound Transit at its option to any and all remedies, including but not limited to specific performance, revocation of the Contract Award, refusal to authorize Notice to Proceed, suspension of Work for such time period as is necessary for Contractor comply with the Contract by mobilizing the specific individuals, and/or termination of the Contract. If Sound Transit elects to continue the Work with Contractor's replacement key personnel, Sound Transit may, in addition to all other remedies available to it, deduct \$175,000 from the Total Contract Price as liquidated damages for such substitution of one or more of the key personnel. Contractor acknowledges that in that event such amount is not a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the replacement of the key personnel on which Sound Transit relied for the award of this Contract.
- D. Sound Transit will not enforce the provisions in Article 2.04C in the event compliance becomes impossible or commercially impracticable, or upon achieving Final System Acceptance, provided Contractor first submits substitute key personnel of equivalent skills, credentials and experience for approval by Sound Transit which shall not be unreasonably withheld or delayed. For the avoidance of doubt Article 2.04C and 2.04D are applicable only in occasions that are within Contractor's control.



2.05 SUBCONTRACTING

- A. The Contractor was awarded the Contract due in part to the Contractor's submittal of qualifications for major Subcontractors and suppliers. Contractor's failure to use such Subcontractors after award of the Contract shall (subject to the exception in Article 2.05B constitute a breach of Contract entitling Sound Transit at its option to any and all remedies, including but not limited to specific performance, revocation of the Contract Award, refusal to authorize Notice to Proceed, suspension of Work for such time period as is necessary for Contractor comply with the Contract by mobilizing the specific individuals, and/or termination of the Contract. If Sound Transit elects to continue the Work with Contractor's replacement Subcontractor, Sound Transit may, in addition to all other remedies available to it, deduct 0.3 percent of the initial Contract Price as liquidated damages for such substitution of one or more of the Subcontractors. Contractor acknowledges that in that event such amount is not a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the replacement of the Subcontractor on which Sound Transit relied for the award of this Contract.
- B. Sound Transit will not enforce the provisions in Article 2.04A in the event compliance becomes impossible or commercially impracticable, provided Contractor first submits substitute Subcontractor of equivalent skills, credentials and experience for approval by Sound Transit which shall not be unreasonably withheld or delayed.
- C. The Contractor shall be responsible for obtaining from its Subcontractors and submitting to Sound Transit all required certifications, documentation, and submittals, including but not limited to technical submittals, federal certificates, small business compliance forms, or other documentation that is required to be submitted under the terms of this Contract. The Contractor shall be responsible for ensuring that all Contract requirements provided for in the Contract Documents that are specific to subcontracting will be included in Subcontracts, including but not limited to all reporting requirements and mandatory Federal provisions set forth in Section 02, Federal Provisions.
- D. The Contractor is responsible for evaluating each of its Subcontractors under this Contract and shall award subcontracts only to responsible Subcontractors. All Subcontractors shall be properly licensed, registered, or certified, as applicable, to perform the assigned Work. If requested by Sound Transit, the Contractor shall provide documentation regarding the Contractor's evaluation of any Subcontractor's responsibility and that the Subcontractor is properly licensed, registered or certified, as applicable. The Contractor shall require all Subcontractors to comply with all provisions of this Contract and shall pass down the requirements of this Contract to its Subcontractors so that all the applicable provisions of this Contract are fully effective.
- E. Within thirty (30) days of the signing of each subcontract, the Contractor shall submit to Sound Transit a Subcontractor Participation Plan. The Subcontractor Participation Plan shall identify the Subcontractor, provide the data on which the responsibility determination was based, and provide the socio-economic profile data of the Subcontractor. The Contractor shall include a copy of the subcontract (or at least that portion of the subcontract that demonstrates that all required federal clauses were included in the subcontract) with the Subcontractor Participation Plan. The copy of the subcontract that is submitted to Sound Transit shall have been signed by both the Contractor and the Subcontractor. Proprietary provisions may be redacted but will be made available for review if a non-disclosure agreement is executed. A sample Subcontractor Participation Plan form will be provided by Sound Transit.
- F. Contractor shall submit a Monthly Report on Subcontractors, on a form provided by Sound Transit,



as part of its monthly partial payment request. Submission of a completed Monthly Report of Subcontractors shall be a condition precedent to Sound Transit processing partial payment requests.

- G. If the Contractor believes that a Small Business / Disadvantage Business Enterprise (SB/DBE) Subcontractor that was listed at any tier to fulfill the Contractor's SB/DBE commitment may not be able to successfully complete any portion of the subcontracted Work, the Contractor shall immediately identify to the Regional Program Manager the Subcontractor at issue, the reason for believing such subcontractor may not be able to perform the subcontracted Work, and any actions being taken by the Contractor to mitigate such possibility.
- H. No Work shall be subcontracted to new Subcontractors without written notification to Sound Transit, on a form provided by Sound Transit. No substitutions shall be made for any Small Business/Disadvantaged Business Enterprise Subcontractor that was listed to fulfill the Contractor's SB/DBE commitment without written notification to, and approval by, Sound Transit; such approval to be neither unreasonably withheld or delayed. The Contractor's Request for Substitution of Subcontractors shall be made on a form provided by Sound Transit.
- I. Subcontracting shall create no contract between Sound Transit and the Subcontractor, nor shall the Subcontractor have any rights against Sound Transit by reason of its Subcontract with the Contractor. The Contractor shall be responsible for all Work furnished, and no Subcontract shall relieve the Contractor of any of the Contractor's obligations or liabilities under the Contract.
- J. The Contractor shall be fully responsible and liable for the acts or omissions of all Subcontractors and Suppliers including persons directly or indirectly employed by them, their guests, and invitees. The Contractor shall have sole responsibility for managing and coordinating the operations of its Subcontractors and Suppliers, including the settlement of disputes with or between them.
- K. If a Subcontractor's work fails to meet Contract requirements or demonstrates careless or unacceptable workmanship and the Subcontractor fails to respond to notice of such defective work or to improve workmanship, the Regional Program Manager may direct the Contractor to replace the Subcontractor, in which event the Subcontractor shall not again be employed on the Work under the Contract.
- L. The on-site production of materials produced by other than the Contractor's forces shall be considered as subcontracted. The erection, establishment, or reopening of on-site facilities for production of materials and the operation thereof in the production of said materials for use on the Work shall conform to the requirements relating to labor and insurance set forth in the Contract Documents.
- M. The performance of the Work may require Sound Transit or other ORCA partner agencies to work and/or communicate directly with Subcontractors from time to time. As such, Sound Transit or other ORCA partner agencies shall not direct Subcontractors to do work without advance written permission from the Contractor.

2.06 CONTRACTOR'S FACILITIES AND EQUIPMENT

The Contractor shall furnish facilities and equipment that shall be of adequate number, size, and condition to produce satisfactory quality of Work, including without limitation all applicable federal requirements. All facilities and equipment used by the Contractor shall meet all applicable safety, noise, and emission regulations and permit requirements as well as other requirements of the Work. Facilities and equipment that fails to meet the requirements of the Contract or to produce a satisfactory product or result shall,



upon written order by Sound Transit, be removed immediately and not used again on the Project without Sound Transit's prior written approval. All additional costs, delay or impact resulting from Contractor's use of facilities or equipment failing to meet Contract requirements shall be at Contractor's expense.

2.07 ACCEPTANCE OF EXISTING CONDITIONS

If any part of the Contractor's Work depends on proper execution of the work of other forces or existing conditions, the Contractor shall report to the Regional Program Manager, before using the work, all defects found in such work that render it unsuitable for the Contractor's Work. Such report shall be in writing and shall be submitted within thirty (30) days of being granted access to the work. Failure of the Contractor to report such defects shall constitute an acceptance of the other forces' work or existing conditions as fit and proper for the execution of the Contractor's Work and shall preclude any claim for additional compensation or schedule extension for uncovering the Work or correcting defects, except for defects in the other force's work which are latent and not reasonably discernible. Any request for additional compensation based on defective work of others or existing conditions shall be governed by the procedures of Article 4, Changes and Change Order Process.

ARTICLE 3 CONTROL OF THE WORK

3.01 NOTICES AND COMMUNICATIONS

A. Sound Transit

All notices, communications, product data, submittals, and other documentation (hereinafter "Communications") submitted by the Contractor to Sound Transit during the course of Contract performance shall be in writing and in English. The Contractor shall deliver Communications to the Regional Program Manager either in person or at his/her designated office via courier, U.S. Postal Service, or overnight delivery service. Communications by facsimile and e-mail shall be confirmed with original documents properly numbered and delivered.

B. Contractor

Communications from Sound Transit shall be delivered through the Project Manager and shall be deemed to be well and sufficiently given to the Contractor if delivered to its project office, if mailed or delivered to the Contractor's post office box or address as stated in the Contract, or if faxed to the Contractor at a designated fax number or emailed, followed up by hard copy.

Communications shall be numbered and marked in accordance with specifications related to the Contract Documents.

3.02 COORDINATION WITH OTHERS

- A.** Sound Transit reserves the right to perform work not included in the Contract or let other contracts to third parties to perform other work in the vicinity of, or relating to, this Contract. Other government agencies may also be performing other work in the vicinity of or relating to this Contract such as inspections, maintenance / relocation / equipment installation / and other activities. Private developers or businesses may be engaged in activities in the vicinity of, or relating to, this Contract. The Contractor shall cooperate with Sound Transit, other agencies, and other contractors or developers in scheduling and coordinating the Contractor's Work with the work of others in order to minimize conflicts, avoid interruptions or delays to others and promote the orderly completion of the Work as a whole. The Contractor shall not commit or permit any act that will interfere with the performance of work by any government agency, contractor,



developer, or Sound Transit.

- B. Unless specifically identified otherwise, the Contractor may not have exclusive access to or use of work areas. Unless the Contractor has exclusive access to a work area, the Contractor may be required to use facilities and areas concurrently with others. When other forces are employed on related or adjacent work, the Contractor shall conduct its operations in such manner as to cause the least possible delay and hindrance to the other forces. The Contractor shall be responsible to Sound Transit for all damage to the Work, persons, and property caused to other forces by Contractor's operations and for loss to other forces caused by the Contractor's unnecessary delays and for failure to finish the Work within the time specified for completion.
- C. If the Contractor is unreasonably delayed by others, immediate notification shall be made in writing to the Regional Program Manager. Any request for a time extension or additional compensation allegedly resulting from such delay shall be made in accordance with the procedures of Article 4, Changes and Change Order Process and Article 10.02 B, Delays. The Contractor shall mitigate and minimize any such delay by other forces.

3.03 CONTRACT RECORDS

- A. The Contractor shall keep and maintain comprehensive records and documentation relating to the Work under this Contract, as well as documents related to the Contractor's proposal for this Contract. The Project Records shall include, but are not limited to, submitted Proposal, Contract Documents, subcontracts (if any), purchase order(s), employment records, payrolls, project cost accounting records, prevailing wage records, plans, specifications, addenda, shop drawings, Change Orders, and all working documents leading to Change Orders, field test records, quality control documents, daily logs by all field supervisors and project management personnel, correspondence relating to the Contract, and drawings labeled as as-built. Project records shall be maintained and retained by the Contractor for the audit period required under Article 3.04 below.
- B. EEO/Non-Discrimination Documentation. The purpose of this sub-section is to ensure that the Contractor and all of its subcontractors at every tier maintain sufficient written documentation so that Sound Transit can easily and quickly verify that all hiring and termination decisions related to workers fully complies with applicable Title VI, equal employment opportunity and non-discrimination laws, regulations, and policies. When any employee or prospective employee of the Contractor or a subcontractor at any tier (including, but not limited to, an apprentice or journey-level worker sent by the appropriate union hall) is terminated, turned away without the opportunity to work, or otherwise denied the opportunity to work on the Site for any reason other than completion of all work to be performed by individuals with the skills of the particular worker, the Contractor shall retain, and make available to Sound Transit within 10 business days of a request to review, the following documentation:
 - 1. Written documentation explaining why the specific individual was terminated, turned away, or otherwise denied the opportunity to work on the Site; and
 - 2. Written objective, non-discriminatory criteria used to determine whether such individual was sufficiently qualified to perform the work and how such criteria relates to the particular work.

Except for Unavoidable Delay, if Contractor fails to provide its complete and detailed documentation to Sound Transit within 10 business days of receipt of Sound Transit's emailed written request, liquidated damages in the amount of \$10,000 will be assessed per business day



that such documentation has not been provided to Sound Transit. Contractor acknowledges that liquidated damages will not be considered a penalty and constitutes a reasonable estimate of damages to Sound Transit associated with the Contractor's failure to timely submit the required documentation and Sound Transit's inability to publicly demonstrate that the Contractor is fully complying with Title VI, EEO and non-discrimination requirements in the Contract.

- C. Cost records shall be kept in accordance with generally accepted accounting principles and the Contract Documents and shall include all records reasonably necessary, as determined by Sound Transit, to verify all costs incurred and any schedule revision required.
- D. The Contractor shall ensure each of its Subcontractors maintains and retains for said audit period all Project Records pertaining to the performance of the Subcontractor's Work under this Contract in full compliance with Article 3.03A and B. In the event this Contract is funded in part with federal funds, and the federal grant requires different reporting or retention periods, the more stringent requirement will apply.

3.04 AUDIT ACCESS TO RECORDS

The Contractor shall permit, and shall require Subcontracts to permit, authorized representatives of Sound Transit, the U.S. Department of Transportation, and the Comptroller General of the United States to audit, inspect, examine, and copy the Project Records that are maintained by Contractor, any affiliated company or any Subcontractor involved in the Contract at any reasonable time and shall provide such assistance as may be reasonably required in the course of such inspection, including the right to interview personnel. Sound Transit further reserves the right to examine and re-examine the Contract Records during the six (6) year period following the Final Payment and until all pending matters are closed. Such audit(s) may include examination of the Contract Records for evaluation of any Change Order or Claim, or any issue related to performance of the Work. The Contractor shall in no event dispose of, destroy, alter, or mutilate said Contract Records in any manner whatsoever for six (6) years after Final Payment and until all pending matters are closed. No additional compensation will be provided to the Contractor for compliance with the requirements of this Article.

3.05 SUBMITTALS AND SHOP DRAWINGS

- A. Where required by the Contract Documents, the Contractor shall submit specified information that will demonstrate that the Contractor's proposed materials, equipment, or methods of Work are in compliance with the Contract Documents. Sound Transit will not be obligated to accept or pay for materials, equipment or Work for which submittals are required herein, unless and until all submittals have been submitted and reviewed in accordance with the Contract Documents.
- B. Review and other appropriate action with regard to Submittals by Sound Transit shall be for general conformance with the Contract requirements and shall not relieve the Contractor of responsibility for any errors or omissions in such Submittals, nor from compliance with the requirements of the Contract Documents; and further, the Contractor shall have no claim under the Contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed. Review by Sound Transit shall not constitute approval of the safety precautions employed by the Contractor or constitute approval of the Contractor's means or methods of the Work. The Contractor shall not deviate from shop drawings, product data, samples, or similar submittals that have been reviewed with a finding of "No Exception Taken" without submitting the proposed deviation for Sound Transit's review and appropriate action.
- C. Sound Transit reserves the right to charge the Contractor for all, or some portion of, the costs of excessive or unreasonable costs of reviewing submittals repeatedly rejected for being incomplete



or inadequate.

- D. Submittals offered to demonstrate methods, procedures, sequences, or duration for performing the Work or to detail temporary elements such as shoring or formwork, shall be reviewed by Sound Transit for general compliance with applicable requirements of the Contract. Such review will not include a detailed analysis of the design or an evaluation of the adequacy of the method, procedure, resource commitments, or time allocated for performance.
- E. Contractor shall make Submittals to Sound Transit only after (1) reviewing all Contractor and Subcontractor Submittals for accuracy and compliance with the Contract and (2) coordinating all Submittals with all Work by other trades.

3.06 CUTTING AND PATCHING

The Contractor shall be responsible for all cutting, fitting, and patching required to complete the Work or to make its parts fit together properly. The appearance following any cutting, fitting, or patching shall conform to the appearance of adjacent like materials or surfaces and be consistent with the overall appearance of the Project. The Contractor shall be responsible for any damages caused by its cutting, fitting, and patching, whether of its own Work or of other work affected by the cutting, fitting or patching. The Contractor may not alter any work other than its own except by permission by Sound Transit. Such permission by Sound Transit shall not relieve the Contractor from responsibility for the Work affected by the cutting, fitting, or patching.

3.07 INSPECTION, SAMPLING, AND TESTING

- A. Contractor Testing
 - 1. It is the Contractor's responsibility to provide materials, supplies, equipment and workmanship that conforms to the Contract Documents. Unless specifically provided otherwise in the Contract Documents, the Contractor shall be responsible for demonstrating and documenting that the materials or equipment to be incorporated into the Work comply with the Contract Documents. Materials testing shall be performed by the Contractor in accordance with the Contract Documents. The Contractor shall bear all costs of said tests.
 - 2. In the event that a third-party public agency has authority over materials or equipment, approval must be obtained from said third-party public agency prior to Sound Transit's approval. Approval by a third-party public agency does not constitute approval by Sound Transit. The Contractor shall provide Sound Transit, and any applicable third-party public agency, with a schedule by which any testing will be conducted as well as timely notice of the time and place of any such tests. The Contractor shall maintain complete test records and submit them to Sound Transit upon request or as required elsewhere by the Contract Documents.
 - 3. Any mechanical, electrical and instrumentation systems which function as a completed system must be tested or inspected as a complete system in addition to any tests or inspections conducted for the component parts.
 - 4. If conformance of materials or equipment to the requirements in the Contract is not determinable through inspection and tests, the Contractor shall provide properly authenticated documents, certificates, or other satisfactory proof of conformance. Such documents, certifications, and evidence shall include performance characteristics,



materials, and the physical and chemical characteristics of materials. All costs associated with such certification shall be paid by the Contractor.

B. Sound Transit Inspection and Testing

1. Sound Transit reserves the right to sample, inspect, or test the materials, equipment, and Work, as it deems necessary at any reasonable time during the Work. Said testing and inspection may occur on or off the site. Sound Transit shall conduct such tests or inspections in a manner that will cause no undue delay in the Work. The Contractor shall provide Sound Transit with sufficient notice, access, and assistance to allow Sound Transit's representative to inspect, sample, and test materials and equipment prior to their incorporation into the Work or to inspect, sample, or test Work prior to covering the Work. Re-inspection or re-testing required because of non-conformance to specified requirements will be charged to the Contractor.
2. Sound Transit, at any time prior to Final System Acceptance, may require the Contractor to uncover either portions of or all of the Work for inspection, sampling, and testing. The Contractor shall restore these portions of Work to the standard required by the Contract. The uncovering and restoration shall be done at the Contractor's expense, if the Work uncovered does not comply with the Contract, if it complies but was done without required documentation, or if Sound Transit was given insufficient notice to allow adequate time for inspection, sampling, or testing. If the Work uncovered meets the Contract requirements and was done with sufficient notice to Sound Transit, the costs of uncovering and restoration shall be paid by Sound Transit in accordance with Article 4, Changes and Change Order Process.
3. The Regional Program Manager may inspect the production of material or the manufacture of products at the source of supply. Facilities inspection, however, will be undertaken with the cooperation and assistance of both the Contractor and the material producer. The Regional Program Manager or the Regional Program Manager's authorized representative shall have reasonable entry at all times to such parts of the facilities as concern the manufacture or production of the materials. Adequate facilities shall be furnished free of charge to make the necessary inspection. The Regional Program Manager assumes no obligation to inspect materials at the source of supply. The responsibility for incorporating satisfactory materials in the Work rests entirely with the Contractor, notwithstanding any prior inspections or tests.
4. The Regional Program Manager's inspection is conducted to verify that the Contractor has performed its work properly. Any observation, verification, inspection, or approval of the Work or materials by Sound Transit shall not relieve the Contractor of any of the Contractor's obligations to fulfill the Contract as prescribed. Work and materials not meeting Contract requirements shall be made acceptable to Sound Transit. Unsuitable work or materials may be rejected, notwithstanding that payment for such Work or materials may have been previously authorized and included in a Partial Payment.
5. Unless the subject items are expressly accepted by Sound Transit in writing, any inspection and testing done by Sound Transit is for the sole benefit of Sound Transit only and does not constitute or imply acceptance; relieve the Contractor of responsibility for providing adequate quality control measures; relieve the Contractor of responsibility for risk of loss or damage to the Work, materials, or equipment; relieve the Contractor of its responsibility to comply with the requirements of the Contract Documents; or impair



Sound Transit's authority to reject defective or non-conforming Work or invoke any remedy to which it may be entitled.

3.08 NON-CONFORMING WORK AND DEFECTIVE WORK

- A. Defective Work - If Sound Transit determines that material, equipment, or workmanship proposed for or incorporated in the Work does not fully comply with the requirements of the Contract and will not be accepted by Sound Transit (Defective Work), Sound Transit may reject such Work upon written notice to the Contractor. In such event, Sound Transit may, at its discretion, (1) require the Contractor to promptly repair, replace or correct all Work not performed in accordance with the Contract; (2) require the Contractor to provide a suitable corrective action plan, which shall only be performed if approved by Sound Transit; or (3) provide a suitable corrective action plan and direct the Contractor to execute it, and in such case Contractor shall have the option of (i) implementing the Sound Transit plan or (ii) promptly repairing, replacing or correcting all Work not performed in accordance with the Contract. Regardless of the option chosen by Sound Transit, the Contractor shall implement such plan with no delay to the Project Schedule, at no additional cost to Sound Transit, and within a period provided by Sound Transit. If the corrective action plan as accepted or directed by Sound Transit does not remedy the Defective Work, the Contractor shall remain responsible for remedying the Defective Work to Sound Transit's satisfaction and at no additional cost or schedule delay to Sound Transit. The Contractor shall also be responsible for repairing all property and work damaged by the Contractor at no cost or schedule delay to Sound Transit.
- B. Non-Conforming Work - Sound Transit may at its option retain Work that does not fully comply with the requirements of the Contract. Sound Transit shall promptly provide Contractor with detailed written notice of the manner in which it considers the Work not fully in compliance with the requirements of the Contract. Until written notice is provided, Contractor shall assume that the work is in full compliance in order to continue advancing the Project. A reasonable value for such Non-Conforming Work will be determined by Sound Transit, and appropriate deductions will be made in the payments due or to become due to the Contractor. Final System Acceptance will not act as a waiver of Sound Transit's right to recover from the Contractor an amount representing the deduction for retention of Non-Conforming Work.
- C. Sound Transit's inspection of the Work or right to reject Work that does not fully comply with the Contract shall not relieve the Contractor of its responsibility for performing the Work in full conformance with the Contract Documents. Other than as set forth herein, no failure or forbearance of Sound Transit in notifying the Contractor of Work that does not fully comply with the Contract shall relieve the Contractor of its Contract responsibility to ensure that the Work is performed in accordance with the Contract Documents.

3.09 ACCEPTANCE OF WORK

- A. Inspection - When the Contractor has concluded the Work or a designated portion thereof, the Contractor shall notify Sound Transit in writing that the work is complete and ready for inspection. Upon receipt of the notification, Sound Transit will promptly by inspection determine the actual status of the Work in accordance with the terms of the Contract. If Sound Transit finds materials, equipment, or workmanship not in conformance with the Contract, Sound Transit will prepare a punch list of such corrective items and submit the list to the Contractor. At any time prior to Acceptance, Sound Transit may add punch list items. The Contractor shall complete all punch list items and notify Sound Transit that the Work is ready for Acceptance. Upon such notice, Sound Transit will verify that the Work has been completed. If such Work has not been completed and



additional inspections become necessary because of the acts or omissions of the Contractor, the Contractor shall reimburse Sound Transit for its costs related to such inspections. Following completion of the corrective Work and inspection by Sound Transit, Sound Transit shall issue a Notice of Acceptance of the Work or a designated portion thereof.

- B. Substantial Completion - At the Contractor's request or as determined by Sound Transit, Sound Transit will conduct an inspection and review of required documents to determine Substantial Completion of all or a designated portion of the Work. If upon inspection and document review, Sound Transit determines that the Contractor has in fact achieved Substantial Completion, Sound Transit will issue to the Contractor a Notice of Substantial Completion. The Notice of Substantial Completion will provide the Contractor with a punch list of corrective actions or other work to be completed for Acceptance. The Contractor shall complete all punch list work within thirty (30) days after receiving the Substantial Completion Notice. Failure to do so may result in a determination by Sound Transit to have the work done by others. The Contractor will be responsible for all costs associated with completing the punch list work. Further, Sound Transit reserves the right to commence use of any portion of Work that has been substantially completed. In such event, Sound Transit will assume care, custody and control of said portion of the Work, including responsibility for operation and maintenance costs associated with use of said Work. In no case shall the Notice of Substantial Completion be construed as relieving the Contractor from liquidated damages due to delay for any portion(s) of the Work not specifically referenced therein, or any other requirement under the Contract Documents. Such Notice shall not constitute Acceptance or Final System Acceptance.

Prior to Sound Transit granting Substantial Completion for any Contract Milestone, the Contractor is required to have submitted acceptable copies of all as-built drawings, operation and maintenance manuals, test report and warranties, and Contractor must have provided and completed all training of operations and maintenance personnel required by the Contract that are associated with the Milestone for which Substantial Completion is being requested.

- C. Acceptance - In the event Sound Transit shall revoke Acceptance Sound Transit shall not have the right to immediate reimbursement of any payment to Contractor made prior to the revocation of Acceptance. A written Notice of Acceptance issued by Sound Transit shall constitute Acceptance of a designated portion of the Work. A Notice of Acceptance shall not waive claims by or statutory rights of Sound Transit to revoke acceptance or for any unauthorized, Non-Conforming or Defective Work, nor shall the making of any Partial Payment be deemed a waiver of claims or rights of Sound Transit under this Contract. In addition, after Notice of Acceptance, Sound Transit shall not be barred from requiring the Contractor to remove, replace, repair, or dispose of any unauthorized, Non-Conforming or Defective Work or from recovering damages for any such Work. Contractor shall remain responsible for site security where it has sole access or where it controls right of access through the date of Final System Acceptance. Sound Transit's rights hereunder shall exist and remain to the full extent permitted by law and as set forth in this Contract. The Contract Warranty shall commence upon Acceptance.
- D. Final System Acceptance - A written Notice of Final System Acceptance shall constitute Sound Transit's acknowledgement that the Contractor has fulfilled all of its obligations under the Contract and that Sound Transit has accepted the Work as of the date stated in the Notice. The Contractor may request Final System Acceptance from Sound Transit upon full and satisfactory completion of all Contract Work and fulfillment of all obligations under this Contract.



3.10 USE OF COMPLETED OR PARTIALLY COMPLETED PORTIONS OF THE WORK

- A. Sound Transit shall have the right to take possession of or use completed or partially completed portions of the Work notwithstanding that the time for completing such portions may not have expired. Such use by Sound Transit shall in no case be construed as Substantial Completion, Acceptance or Final System Acceptance of the Work, and shall neither relieve the Contractor of any of its responsibilities under the Contract, nor act as a waiver by Sound Transit of any of the conditions thereof. Such use shall not trigger the commencement of Warranty provisions under this Contract or as provided by manufacturers, unless specifically provided otherwise in writing by Sound Transit. Operations and maintenance costs, as well as repair costs for any damages caused solely by Sound Transit, incurred as a result of Sound Transit's use of such portions will be borne by Sound Transit.
- B. If such use increases the cost or delays the completion of remaining portions of the Work for which Contractor seeks payment and/or additional time, the Contractor must notify Sound Transit of its Request for Change in writing as required by the Contract and may be entitled to such additional compensation or extension of time, or both, as determined in accordance with Article 4, Changes and Change Order Process. Any disputes regarding such entitlement shall be resolved in accordance with the provisions of Article 10, Delays and Claims. The Contractor shall not be entitled to extra compensation for Sound Transit's possession of portions of Work that are specifically required in the Contract to be placed into use and operation or that are required to be turned over to Sound Transit upon a given Contract Milestone date before completion of the entirety of the Work.
- C. In the course of such use, if the Work proves to not be in compliance with the Contract, Sound Transit shall have the right to continue such use until such portion of the Work can be taken out of service so that the Contractor can, at no additional cost to Sound Transit, correct defects, errors, omissions, or replace unsatisfactory materials, as necessary for such portions of the Work to comply with the Contract. Upon notice and opportunity to cure by the Contractor, Sound Transit, at its option, may perform or have another entity perform the corrective work. The Contractor shall remain responsible for the cost of the corrective work. In the event that the Work is determined to be in compliance with the Contract at the time Sound Transit takes possession Sound Transit shall be fully responsible for all costs of whatever nature required to return the Work to its original state.

3.11 LOSS OR DAMAGE TO WORK AND MATERIAL

Other than as provided above, until Sound Transit's Acceptance of any completed or partially completed Work, the Contractor shall have the responsibility for care, custody and control of the Work and of the materials to be used therein, including materials for which the Contractor has received partial payment, materials in transit, and materials which have been furnished by Sound Transit, and shall, unless otherwise provided herein, bear the risk of injury, loss or damage to any part thereof by the action of the elements or from any other cause. The Contractor shall replace, rebuild, repair or restore all damage to any portion of the Work and materials occasioned by any cause, unless otherwise provided herein, before its completion and Acceptance, at no additional cost to Sound Transit. Contractor shall, at the Contractor's expense, provide suitable drainage and erect such temporary structures as are necessary to protect the Work and materials as herein specified. A suspension of Work shall not relieve the Contractor of responsibility for the Work and materials as herein specified. The Contractor shall properly store materials for which partial payments have been made by Sound Transit or which have been furnished by Sound Transit. Such storage by the Contractor shall be on behalf of Sound Transit and Sound Transit shall at all times be entitled to possession of such materials, and the Contractor shall promptly return the same to



the site of the Work when requested. The Contractor shall not dispose of any of the materials so stored except on written authorization from the Regional Program Manager.

3.12 WARRANTY OF WORK

- A. The Contractor warrants that the Work and any portion thereof: (a) shall meet the requirements of the Contract, (b) shall be free of defects in material and workmanship, and (c) shall be free of defects in design(s) where such design(s) is performed or provided by the Contractor, Subcontractors or Suppliers. This Warranty shall apply to Defective Work and Non-Conforming Work that is discovered within twelve (12) months after the date of Acceptance. If corrective work is performed by the Contractor under this Warranty, the Warranty shall also apply to discrepancies and defects in the corrective work that are discovered within twelve (12) months after the corrected work is again placed in operation. These warranty terms shall be extended for any period that a portion of the Work cannot be used for the purpose intended as a result of discrepancies or defects. This Warranty shall apply whether or not designs, data or information have been reviewed or approved by Sound Transit or the Regional Program Manager, but shall not apply to defects caused by vandalism, misuse and/or improper operation or maintenance of the Work by Sound Transit.
- B. Sound Transit will notify the Contractor in writing or facsimile confirmed in writing, on discovery of Defective Work or Non-Conforming Work covered by this Warranty in accordance with the provisions of Article 3.08, Non-Conforming Work and Defective Work. The Contractor shall commence to remedy the Defective Work or Non-Conforming work in accordance with the provisions of Article 3.08, Non-Conforming Work and Defective Work.
 1. The Warranty provided under this Article shall be in addition to those specific warranty requirements for particular equipment or work items indicated in the Contract Documents, and in addition to other rights or remedies available to Sound Transit under this Contract or at law. Warranties shall be secured by the Performance Bond, or in Sound Transit's sole discretion, other financial security acceptable to Sound Transit, such as a warranty bond or letter of credit. In circumstances in which Sound Transit determines that it would be inefficient or impracticable for the Contractor to perform the corrective work, Sound Transit reserves the right to select another firm to perform the corrective work or to perform the corrective work itself upon notice to the Contractor. Such corrective work by another firm, or by Sound Transit, shall be at Contractor's expense, provided that Contractor is kept fully informed as to the details and costs of any such corrective work. If the Contractor performs work at the job site under these guaranty provisions, the Contractor shall furnish insurance coverage therefore as specified in Section 03 Insurance Requirements. Prior to beginning such work the Contractor shall furnish certification of insurance satisfactory to Sound Transit.
 2. Unless otherwise required by Sound Transit, the Contractor shall commence to perform the corrective work required to satisfy this warranty within fifteen (15) days from the date of written notification. The Contractor shall at its sole expense perform the corrective work on an overtime and/or shift work basis, and shall procure required materials using the fastest means available when necessary to minimize the impact to other Sound Transit contractors or Sound Transit's loss of operating time. The Contractor shall diligently prosecute the corrective work and shall complete such corrective work within the time frame stipulated by Sound Transit.
 3. If the Contractor fails to make or undertake the corrections or removal/replacement with



due diligence within the time periods specified above, Sound Transit is hereby authorized to make such corrections. In case of an emergency, whereby delay could cause serious loss or damage in the opinion of Sound Transit, corrections or replacement may be made prior to or concurrent with notice being sent to the Contractor. All expenses in connection with such corrections or replacement by Sound Transit, including the cost for professional services, will be charged to the Contractor.

- C. Nothing in this warranty is intended to limit any manufacturer's warranty, which provides Sound Transit with greater warranty rights than set forth in the Contract Documents.

3.13 WARRANTY OF TITLE

- A. The Contractor shall have no property right in the equipment used after they have been attached or affixed to the Work or existing real property, or after any payment has been made by Sound Transit towards the value of materials delivered to the site of the Work, or stored subject to or under the control of Sound Transit. Title to all such materials shall become the property of Sound Transit upon being so attached or affixed or after any payment towards the value of materials stored off site or delivered to the site of the Work or stored subject to or under the control of Sound Transit, whichever occurs earlier.
- B. No material, supplies, equipment, or items for the Work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein, or in any part thereof is retained by the seller or Supplier. The Contractor shall warrant good title to all materials, supplies, equipment, and items installed or incorporated in the Work. Upon completion of all the Work, the Contractor shall deliver the same together with all improvements and appurtenances constructed or placed thereon by the Contractor to Sound Transit free from any claims, liens, or charges. Neither the Contractor nor any person, firm, or corporation furnishing any material or labor for any Work covered by this Contract shall have any right to lien upon any improvement or appurtenance thereon. This Article shall not defeat or impair the right of the persons furnishing materials or labor to recover under any payment bond given by the Contractor for their protection, or any rights under state law permitting such persons to look to retained funds due the Contractor in the hands of Sound Transit.
- C. The provisions of this Article shall be inserted or referenced in or otherwise made a part of all subcontracts and material contracts, and notice of its provisions shall be given to all persons furnishing materials for the Work whenever no formal contract is entered into for such materials. Additionally, as a part of the subcontract, material contract, or notice, the Contractor shall provide to such Subcontractors and Suppliers the name, address, and phone number of the Contractor's bonding company and the bond number applicable to the Contract under which the Subcontractor or Supplier would make its claim.

3.14 MANUFACTURER'S WARRANTIES

The Contractor shall furnish to Sound Transit any manufacturer's or Supplier's guarantee or warranty furnished in connection with the purchase by the Contractor or any Subcontractor of any equipment, materials, or items required, provided such guarantee or warranty shall be in addition to those specific guarantee or warranty requirements for particular equipment or Work items indicated in the Specifications and shall not relieve the Contractor of its obligations under Article 3.12, Warranty of Work.



ARTICLE 4 CHANGES AND CHANGE ORDER PROCESS

4.01 CHANGES

- A. Sound Transit reserves the right to make by written order, designated to be a Change Order, alterations to, deviations from, additions to, or deletions from the Contract Documents. Such changes may be made without notice to any surety(ies) or guarantors. Within the performance and payment bonds, if applicable, and any financial guarantees, the surety(ies) and guarantors must waive notice of any Change Orders and agree to be bound in all ways to Sound Transit for any such Change Orders as if it (they) had received notice of the same. Change Orders are required to make any changes to the Contract Price, Contract Documents, or Contract Time. All additions, deductions, or changes to the Work as directed by Change Orders shall be executed under the conditions of the Contract.
- B. Pending resolution of any issue or dispute related to a Change Order, RFC, CN-RFP and/or CN- WD, Contractor shall continue to perform all Work, including the Contract Work associated with the pending change unless Sound Transit explicitly waives this requirement in writing. Contractor shall also be governed by all applicable provisions of the Contract related to compensation and/or additional time for changed work, inclusive of Article 10.
- C. Adjustments in the Contract Price - One of the following methods shall be used to determine the cost and/or value of any work covered by a Change Order, RFC, CN-RFP, CN-WD or Claim. Sound Transit and the Contractor shall negotiate in good faith to determine an equitable adjustment of the Contract Price. The available methods are:
 - 1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities involved in the changed Work; Where Provisional Sums are provided for work items, the provisional sums shall be applied to changes for those work items;
 - 2. By establishment of new unit prices and related quantities for the changed work;
 - 3. By reference to catalog prices or other published prices offered to the public in the open marketplace;
 - 4. By mutual acceptance of a firm fixed price (also referred to as lump sum);
 - 5. On a time and materials basis in accordance with Article 9.09, Payment on Time and Material Basis.

In the event of disagreement, Sound Transit shall determine the method for calculating the adjustment to increase or decrease the Contract Price.

- D. All Change Orders (CO) and Change Notices (CN) shall be issued through Sound Transit. No other order, statement, act of omission or conduct of any representative of Sound Transit or third party will be treated as a change hereunder. Nothing in this Article shall be construed to bind Sound Transit for acts of its employees or agents exceeding their authority.
- E. Nothing in this Article shall be deemed to require a change in Contract Price or Contract Time when additional, extra, or changed work is the result of actual conditions or performance differing from that assumed by the Contractor (except for differing site conditions) or as a result of the Contractor's error in judgment or mistake in designing, estimating, contracting, constructing or otherwise performing the Work. The Contractor shall not be entitled to a change in the Contract



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- Price or Contract Time for delays caused by the Contractor or its Subcontractors, employees, or agents or for any non-compliance with any Contract provisions, applicable law, regulations, or permit requirements affecting the Work.
- F. The Contractor's records pertaining to Changes pursuant to this Article are subject to audit as set forth in Article 3.04, Audit Access to Records.
 - G. Where the firm fixed price/lump sum method is used, the Contractor shall provide a detailed cost breakdown supporting its requested compensation and any additional cost documentation requested by Sound Transit. Any adjustment to the Contract Price made under the firm fixed price/lump sum method shall include all applicable costs for labor, equipment, material, overhead and profit.
 - H. Where the firm fixed price/lump sum method is used and the cost of the Change is negotiated after completion of the Work, the allowed profit and overhead markup shall not exceed that for work performed on a time and material basis as permitted in Article 9.09, Payment on a Time and Material Basis.
 - I. Where the firm fixed price/lump sum method is used and the cost of the Change is negotiated before completion of the Extra Work, the negotiated profit and overhead markup is not subject to a fixed maximum and is to be based on a reasonable calculation of direct and indirect costs incurred in executing the Extra Work, including any delays, impacts or inefficiencies. Where any unit price method is used, the applicable unit price shall include reimbursement for all direct and indirect, onsite and offsite, costs of the changed Work, including profit and overhead.

4.02 REQUEST FOR CHANGE

- A. If the Contractor believes it is entitled to an adjustment of the Contract Price or Contract Time for any reason, Contractor shall submit a Request for Change (RFC) to Sound Transit in writing (in a format acceptable to Sound Transit) in accordance with the provisions of the Contract. The Contractor in the RFC must specify the reasons for such change, including relevant facts and any impacts on the cost and / or schedule.
- B. The Contractor may request additional compensation and/or time through a RFC, but only in the event Contractor provides a written Notice to Sound Transit no later than fourteen (14) days after the onset or occurrence of the event or condition giving rise to the RFC.
- C. The Contractor in its RFC shall provide Sound Transit with a reasonably detailed explanation of the nature and cause of the event or condition giving rise to the RFC, a reasonably accurate calculation of the adjustment to the Contract Price and/or Contract Time, and the reasons why Sound Transit is responsible for the relief sought. Sound Transit shall review the RFC and may require additional information or cost documentation from Contractor to help determine the validity and / or value of the requested change.
- D. Any RFC that is approved by Sound Transit will be incorporated into a Change Notice or a Change Order. If the RFC is denied, but the Contractor believes that it does have merit, the Contractor must submit a Notice of Intent to Claim in accordance with Paragraph 10.01A, Notice of Intent to Claim, if it wishes to preserve its right to seek any adjustment to the Contract Price and/or Contract Time.

4.03 CHANGE NOTICE

- A. Change Notice - Request for Proposal (CN-RFP).



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1. Sound Transit may issue a Change Notice – Request for Proposal to the Contractor describing a proposed change and requesting the Contractor to submit a Cost and Schedule Proposal (in a format acceptable to Sound Transit). A CN-RFP does not authorize a Contractor to commence performance of the changed Work. After receipt of the Cost and Schedule Proposal, Sound Transit may:
 - a. Proceed no further with the proposed change,
 - b. Issue a Change Notice – Work Directive incorporating part or all of the proposed change, or
 - c. Issue a Change Order incorporating part or all of the proposed change.
- B. Change Notice - Work Directive (CN-WD).
1. Sound Transit may issue a Change Notice - Work Directive ordering the Contractor to proceed with a change in the Work. A CN-WD may be issued under one of the following circumstances:
 - a. To execute changes in the Work covered by the unit prices or a lump sum price contained in the Contract;
 - b. To execute changes in the Work on a Time and Material basis, in accordance with Article 9.09, Payment on Time and Material Basis; or
 - c. To direct the Contractor to execute change(s) in the Work pending resolution of an equitable adjustment to the Contract Price and/or Contract Time. If Sound Transit and the Contractor cannot reach agreement on changes to the Contract Price and/or Contract Time prior to starting on the changed Work, the Contractor shall maintain cost records in accordance with Article 9.09, Payment on Time and Material Basis.
 2. The Contractor shall not commence performance of the Work described in the CN-WD, until the CN-WD is issued by Sound Transit. The CN-WD shall expressly specify the:
 - a. Intention to treat such items as changes in the Work;
 - b. Scope of the changes in the Work; and
 - c. Basis under which changes to the Total Contract Price and/or Contract Time will be determined.
 3. When the Contractor receives a CN-WD, the Contractor shall promptly proceed with the Work as indicated in the CN-WD. The Contractor shall carry on the Work and adhere to the schedule. No work shall be delayed or postponed pending resolution of any dispute or disagreement except as Sound Transit and the Contractor may otherwise agree in writing.
 4. Until such time as resolution of an equitable adjustment is reached, the Contractor shall maintain its records in accordance with Article 9.09, Payment on Time and Material Basis. The CN-WD shall become the basis for a Change Order when the amount of the adjustment to the Total Contract Price and/or Contract Time can be determined. The issuance of a CN-WD is sufficient authority for a Change Order, but only within the stated limits of the value of the CN-WD.



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5. The CN-WD shall contain a Not to Exceed (NTE) amount. Contractor may invoice Sound Transit for changed work performed under the CN-WD but only up to and not in excess of the NTE amount. The Contractor is required to notify Sound Transit at the point at which 80 percent of the NTE amount has been expended, and provide an estimate of the cost to complete the changed Work. If Sound Transit agrees that costs in excess of the NTE amount are justified, Sound Transit may issue a revised CN-WD increasing the NTE amount or negotiate a lump sum amount for the changed Work.
- C. Contractor's Cost and Schedule Proposal - If directed by Sound Transit in the Change Notice, the Contractor shall submit a Cost and Schedule Proposal to Sound Transit within fifteen (15) days (or more, if Sound Transit at its option so determines) after receipt of the Change Notice. The Cost and Schedule Proposal shall detail price and scheduling information, showing all of the impacts on the Contract Price and Schedule, and the changes in the level of commitment for Small Business and Disadvantaged Business Enterprises as a result of the changes identified in the Change Notice. If any prices or other aspects are conditional, such as orders being made by a certain date or the occurrence of a particular event at a specified time, the Contractor shall identify these conditions in its Cost and Schedule Proposal. The cost breakdown shall have separate estimates of the costs of added Work and any deleted Work and shall be prepared using one or more of the cost methods described in Article 4.01C as directed by Sound Transit, and shall be presented in a manner such that all phases of work can be easily identified. The Contractor shall submit detailed cost breakdowns as described above for any Subcontractor proposed to perform Work under the change. The Contractor shall also provide detailed scheduling analysis demonstrating the effect of the changed work on the Contract Milestones.

4.04 CHANGE ORDER

- A. The Change Order shall expressly state that it is Sound Transit's intention to treat the items described therein as changes in the Work; identify scheduling requirements, time extensions, prices, and all costs of any nature arising out of the Change Order; and shall contain a statement that the adjustment to the Total Contract Price, if any, includes all amounts to which the Contractor is entitled as a result of the events giving rise to the Change Order. The execution of a Change Order by both parties shall be deemed to be an agreement to all costs and time of performance related to the change, including full and complete payment and final settlement of all extensions of time, changes, Claims, damages and costs for all time, direct or indirect overhead costs, profit and any and all other costs associated with delay, disruption, impact, inefficiency, acceleration, stand-by or any other costs related to the Work covered by or affected by the change.
- B. Bilateral Change Order: Sound Transit will issue a Change Order as soon as practicable following agreement with Contractor's Cost and Schedule Proposal, if Sound Transit decides to proceed with the changed work. If the Contractor agrees with the terms and conditions of a Change Order, the Contractor shall sign the Change Order and return it to Sound Transit for execution by Sound Transit. There will be no reservation of rights by either party on a bilateral Change Order.
- C. Unilateral Change Order: Sound Transit may unilaterally issue a Change Order at any time making changes within the general scope of the Contract, without invalidating the Contract and without providing notice to sureties. In addition, in the event that the Contractor and Sound Transit are unable to agree on the terms and conditions, the amount of any change or adjustment to be made to the Total Contract Price or Contract Time, Sound Transit may execute a Unilateral Change Order. If Contractor disagrees with the adjustment to Contract Price or Contract Time as stated in the Unilateral Change Order, Contractor must file a claim in accordance with the requirements of



Article 10, Delays and Claims. If the Contractor fails to follow the claim procedures in Article 10, the Contractor shall not be entitled to any claim for additional compensation or schedule extension arising out of or relating to the Unilateral Change Order other than that specified in the Unilateral Change Order. The Contractor is required to continue with performance of all work associated with the Unilateral Change Order pending resolution of any Claim under Article 10.

- D. When a Change Order has been executed by Sound Transit, the Contractor shall promptly proceed with the Work as indicated in the Change Order. The Contractor shall carry on the Work and adhere to the schedule during all disputes or disagreements with Sound Transit. No work shall be delayed or postponed pending resolution of any dispute or disagreement, except as Sound Transit and the Contractor may otherwise agree in writing.
- E. At Sound Transit's request the Contractor shall submit, on a form provided by Sound Transit, a Non-Conflict of Interest Certification for any Change Order
- F. Special Rules When Pricing Change Orders
 - 1. If this Contract is subject to the Project Labor Agreement, in accordance with the requirements of the Labor Compliance Manual, the Contractor and its Subcontractors are required to contribute five cents (\$0.05) per hour for each hour of contract labor (those subject to prevailing wages requirements) utilized on the Contract to a Pre- apprentice Training Program Fund. Accordingly, the Contractor shall incorporate into each Change Order an amount equal to five (\$0.05) per hour for each hour of contract labor.
 - 2. Premium increase(s)/decrease(s) for Performance and Payment Bonds:
 - a. Premium increase(s) / decrease(s) for Performance and Payment Bonds will not be paid as a part of Change Order payments, but will be paid / deducted as a lump sum in the final payment. Verification of increased / decreased payment, from the surety, must be provided and will be included in the final reconciling Change Order.
 - b. If the surety should require an immediate payment for the increased Bond(s) value as a result of a large Change Order, the Contractor must supply evidence of the payment made and a copy of the surety's request for early payment.

4.05 SCHEDULE EXTENSIONS

If the Contractor is delayed in completion of the critical path of the Work either by reason of changes made under this Article, or by a delay for which the Contractor is entitled to additional time as specified in Article 10, Delays and Claims, and if Contractor meets all Contract requirements for seeking an increase in time to complete the Work associated with a Contract Milestone(s), the Contractor shall submit a Request for Change within the time allowed by the Contract Documents specifying the number of days of time requested. The Contractor shall demonstrate the schedule impact of changes and delays in order to justify any schedule extensions.

4.06 CONSTRUCTIVE CHANGE ORDER

Except as herein expressly stated, no order, statement, act, or omission of Sound Transit unless provided in writing shall be treated as a change or Change Order under the Contract or entitle the Contractor to an adjustment under the Contract. If the Contractor considers that an act, omission, order or statement by the Regional Program Manager or Sound Transit deviates from the Contract requirements or may entitle the Contractor to extra compensation or a time extension, the Contractor shall submit a Request for



Change as provided above. Failure to submit a timely and documented RFC shall constitute a waiver of any Claim associated with the subject of such alleged constructive change. The Contractor shall not proceed with the Work until appropriate directions are received from Sound Transit.

4.07 EXCLUSIVE REMEDIES

The procedures specified herein and in Article 10, Delays and Claims, of these General Conditions are the Contractor's exclusive remedy for any claim against Sound Transit, whether for extension of the Contract Time, an increase in the Contract Price, actual or constructive changes, delays, impacts, inefficiencies, equitable adjustments or otherwise. The requirements of Article 10 cannot be waived except by explicit written waiver signed by Sound Transit and Contractor. No course of conduct or dealings between the parties, no express or implied acceptance of change or alterations to the Work, and no claim that Sound Transit has been unjustly enriched by an alteration or Change to the work, shall be the basis of any other claim for an increase in Contract Price or extension in the Contract Time for completion of the Work.

4.08 CHANGES IN QUANTITIES

- A. This Article applies to unit price items on the Contract Price Schedule with an estimated quantity of four (4) or more and the measured quantities required to complete the Work.
- B. Increases in Quantities of More than 25 percent.

Should the actual total quantity of a Contract Pay item of work shown on the Price Form exceed the estimated quantity shown on the Price Form by more than 25 percent, the Work in excess of 125 percent of such estimated quantity and not covered by an executed Change Order specifying the compensation to be paid, will be paid for by adjusting the Contract unit price as hereinafter provided or at the option of the Regional Program Manager, payment for the Work involved in such excess will be made on a time and material basis as provided in Article 9.09, Payment on Time and Material Basis.

- 1. The adjustment of the Contract unit price for such excess quantities will be the difference between the Contract unit price and the actual unit cost to perform the work, as determined in this Article. If the costs applicable to such item of Work include fixed costs, such fixed costs will be deemed to have been recovered by the Contractor by the payments made for 125 percent of the estimated quantity shown on the Price Form for such item, and in computing the actual unit cost; such fixed costs will be excluded. Subject to the above provisions, such actual unit cost will be determined by the Regional Program Manager in the same manner as if the Work were to be paid for on time-and- materials basis as provided in Article 9.09, Payment on Time and Material Basis, or such adjustment as agreed to by the Contractor and the Regional Program Manager.
- 2. When the total compensation payable for the number of units of an item of Work performed in excess of 125 percent of the estimated quantity is less than \$5,000 at the applicable Contract unit price, the Regional Program Manager reserves the right to make no adjustment in said unit price.
- C. Decreases of More Than 25 percent.
 - 1. Should the total pay quantity of any item of Work required under the Contract be less than 75 percent of the estimated quantity thereof, an adjustment in compensation pursuant to this Article will not be made unless the Contractor so requests in writing. If the Contractor so requests, the quantity of said item performed, unless covered by an



executed Change Order specifying the compensation payable therefore, will be paid for by adjusting the contract unit price, or at the option of the Regional Program Manager, payment for the quantity of the Work of such item performed will be made on time and materials basis as provided in Article 9.09, Payment on Time and Material Basis.

2. Adjustment of the Contract unit price for such decreased quantities will be the difference between the Contract unit price and the actual unit cost, which will be determined as hereinafter provided, of the total pay quantity of the item, including fixed costs. Such actual unit cost will be determined by the Regional Program Manager in the same manner as if the Work were to be paid for as provided in Article 9.09, Payment on Time and Material Basis, or such adjustment will be as agreed to by the Contractor and the Regional Program Manager.
 3. No compensation shall be made in any case for loss of anticipatory profits.
- D. If the Contractor disagrees with an equitable adjustment determination by the Regional Program Manager, the Contractor shall strictly follow all procedures in accordance with Article 10, Delays and Claims. Failure to do so shall constitute the Contractor's acceptance of determinations by the Regional Program Manager. When ordered by the Regional Program Manager, the Contractor shall proceed with the Work pending determination of the adjustment in costs or time, as applicable.
- E. When Sound Transit has entered an amount for any proposal price item, whether unit or otherwise, solely for the purpose of providing a common proposal price for all proposers, this Article 4.09, Changes in Quantities, shall not apply. Any impact due to an increase or decrease in the amount provided for the purpose of obtaining a common proposal price shall be the sole risk of the Contractor.

4.09 ELIMINATED WORK

- A. Sound Transit may, by written order to the Contractor, omit work, equipment and/or material to be provided under this Contract, and the value of the omitted work equipment and/or material (inclusive of associated profit and overhead) will be deducted from the Contract Price. The deducted value will be based upon the applicable unit price or lump sum, or if there is no such price, the deducted value will be a lump sum agreed upon in writing by the Contractor and Sound Transit based on the Contract Price Schedule and other cost information submitted by the Contractor or obtained otherwise by Sound Transit. In the event that no agreement can be reached on a lump sum basis, Sound Transit shall be entitled to a deduction based on the value as if the work were to be paid for on a Time and Material basis as provided in Article 9.09, Payment on Time and Material Basis.
- B. Should any Contract item of the Work be eliminated in its entirety, in the absence of an executed Change Order covering such elimination, payment will be made to the Contractor for actual costs incurred in connection with such eliminated Contract item if incurred prior to the date of notification in writing by the Regional Program Manager of such elimination.
- C. If acceptable material is ordered by the Contractor for the eliminated work prior to the date of notification of such elimination by the Regional Program Manager, and if orders for such material cannot be canceled, it will be paid for by Sound Transit at the actual cost to the Contractor. In such case, the material paid for shall become the property of Sound Transit and the actual cost of any further handling will be paid for by Sound Transit. If the material is returnable to the vendor and if the Regional Program Manager so directs, the material shall be returned and the Contractor



will be paid for the actual cost of charges made by the vendor for returning the material. The actual cost of handling returned material will be paid for by Sound Transit.

4.10 DIFFERING SITE CONDITIONS

- A. The Contractor shall immediately upon discovery and before the conditions are further disturbed, notify the Regional Program Manager, verbally and in writing of:
 - 1. Subsurface or latent physical conditions at the Site which differ materially from the conditions indicated in the Contract Documents;
 - 2. Unknown physical conditions at the site, of an unusual nature, which differ materially from the conditions ordinarily encountered and generally recognized as inherent in the Work of the character provided for in the Contract.
- B. In areas not affected by the alleged differing site conditions, the Contractor shall continue with performance of the Work.
- C. The Regional Program Manager will promptly investigate the conditions and provide direction with respect to continuing performance of the Work in the area of the alleged differing site conditions.
- D. Unless otherwise agreed upon in writing by Sound Transit, within seven (7) days of the Contractor's initial written notification of the Differing Site Condition to Sound Transit, the Contractor shall provide:
 - 1. A detailed description of the Differing Site Condition;
 - 2. A reasonable estimate of the price and time impacts such Differing Site Condition shall cause to the Contract; and
 - 3. Substantive, contractual, and technical basis supporting the existence of the Differing Site Condition and its impacts.
- E. Within fourteen (14) days from receipt of the Contractor's detailed description of impacts, Sound Transit shall either:
 - 1. Issue a Change Notice (CN) or a Change Order (CO);
 - 2. Make a written determination that the event or condition does not justify any changes to the Contract;
 - 3. Request additional information, or
 - 4. Respond to the Contractor and indicate when a determination will be made, if it cannot be made within the above stated fourteen (14) days.
- F. If Sound Transit finds that conditions are materially different and cause a material increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the Work under this Contract, the Regional Program Manager will make an equitable adjustment in the cost or the time required for the performance of the Work, as provided in Paragraph H below.
- G. No request by the Contractor for an equitable adjustment to the Contract or claim for a Differing Site Condition shall be allowed unless the Contractor has fully complied with the written notice



required in Paragraphs A and D above, unless by explicit written waiver Sound Transit has agreed to extend the applicable notice deadline prior to its expiration. Such notice shall be a condition precedent to any request for an equitable adjustment or claim, and failure to comply shall waive the Contractor's right to make a request for an equitable adjustment or claim.

- H. Cost and time adjustments for a differing site condition accepted as a change by Sound Transit shall be resolved in accordance with this Article and Article 10, Delays and Claims, except to the extent that an equitable adjustment for any condition, otherwise within the scope of this Article, has been addressed by unit price or Provisional Sum item, which shall control if provided. All other provisions and requirements of this Article shall apply to such conditions, including without limitation, notification obligations and investigation requirements with respect to any such conditions.
- I. After providing Notice to Sound Transit and upon receiving direction from the Regional Program Manager, the Contractor shall be required to continue with performance of all work and maintain its progress with the Work pending resolution of the Differing Site Condition.
- J. If the Contractor does not agree with Sound Transit's determination that the event or condition does not justify any change to the Contract, the Contractor must file a Claim in accordance with Article 10, Delays and Claims, or such right to any adjustment in Contract Price and/or Contract Time shall be waived.

4.11 VALUE ENGINEERING CHANGE PROPOSALS (VECPs)

- A. Sound Transit encourages the Contractor to submit Value Engineering Change Proposals (VECPs) in order to avail Sound Transit of potential cost or time savings or increased safety during the Work. The Contractor and Sound Transit will share any savings in accordance with this Article. VECPs may be submitted at any time after Notice to Proceed. A proposal merely to delete or reduce scope of Work does not constitute a VECP.
- B. The Contractor shall submit VECPs directly to the Regional Program Manager. As a minimum, the following information shall be submitted by the Contractor with each VECP:
 - 1. Description of the existing Contract requirements that are involved in the proposed change;
 - 2. Description of the proposed change;
 - 3. Discussion of differences between existing requirements and the proposed change, together with advantages and disadvantages;
 - 4. Itemization of the Contract requirements that shall be changed if the VECP is accepted (e.g., drawing numbers and specification);
 - 5. Justification for changes in function or characteristics of each affected item, and effect of the change on performance of the end item;
 - 6. Effect of proposed change on life-cycle costs, including operation, maintenance, replacement costs, and life expectancy;
 - 7. Date or time by which a Change Order adopting the VECP shall be issued in order to obtain the maximum cost reduction, noting any effect on contract completion time or delivery schedule; and



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8. Cost estimate for existing Contract requirements correlated to the Contractor's unit price or lump sum breakdown and the proposed changes in those requirements.
 9. Costs of development and implementation by the Contractor shall be provided.
 10. Additional costs to Sound Transit (e.g., costs of testing, redesign, and effect on other contracts) shall also be estimated.
- C. Sound Transit retains the right to reject a VECP without review, without recourse by the Contractor if a similar change is already under review; or if in Sound Transit's sole opinion, the potential savings are unlikely to justify the cost of the review; or if the proposed change is otherwise unacceptable to Sound Transit.
 - D. Sound Transit shall expeditiously process VECPs accepted for review but shall not be liable for any delay in acting upon any VECP submitted pursuant to this Article. Sound Transit may accept, in whole or in part, by Change Order, any VECP submitted pursuant to this Article. Until an order to proceed is issued on a VECP, the Contractor shall remain obligated to perform in accordance with this Contract. Change Orders made pursuant to this Article will so state. Sound Transit's decisions as to acceptance or rejection of any VECP shall be at Sound Transit's sole discretion and shall be final and not subject to review by a dispute resolution process or otherwise.
 - E. If a VECP submitted by the Contractor pursuant to this Article is accepted, the Contract Price shall be reduced by an amount equal to 50 percent of the Estimated Net Savings (ENS) to the Contractor plus 50 percent of Sound Transit's Review Costs (STRC) (or the reduction = $0.5\text{ENS} + 0.5\text{STRC}$). The Estimated Net Savings shall be calculated by subtracting the Contractor's Costs from the Contractor's Estimated Gross Savings. For the purposes of this Article, the Contractor's Costs are defined as the reasonable costs incurred by the Contractor in preparing the VECP and making the change, such as cancellation or restocking charges; and the Contractor's Estimated Gross Savings are defined as the difference between the cost of performing the Work according to the existing requirement and the cost to perform the Work according to the proposed change. The Contractor's profit shall not be considered part of the cost and shall not be reduced by application of the VECP.
 - F. The Contractor shall include appropriate value engineering incentive provisions in all subcontracts of \$100,000 or greater, and may include those provisions in any subcontract. In determining Estimated Net Savings for cost reduction proposals that involve a Subcontractor, only actual costs to the Contractor and Subcontractor, as defined in Paragraph E above, will be allowed as Contractor Costs. Incentive payments made to the Subcontractor by the Contractor in connection with the cost reduction proposal will not be allowed in determining Net Savings. Sound Transit is subject to public disclosure of records in accordance with Washington State Law. Material and information, which may be submitted as part of any VECP, will be subject to such public disclosure pursuant to State law.
 - G. The compensation provisions of this Article shall constitute the Contractor's exclusive and complete compensation for Sound Transit's use of the VECP, and the Contractor shall have no right to additional compensation for future or additional uses of the VECP. Sound Transit shall have an absolute and unrestricted right to use the concepts, ideas, methods, materials, and any other salient feature of a VECP, for any purpose other than on the Contract or contracts for which it was submitted.
 - H. In the event Sound Transit and Contractor cannot agree on the Estimated Net Savings, Sound Transit may at its option (i) terminate the proposed VECP or (ii) unilaterally determine the



Estimated Net Savings. If Contractor disagrees with such unilateral determination and seeks to assert a Claim, Contractor shall comply with the Claim requirements of the Contract Documents.

ARTICLE 5 MATERIALS AND EQUIPMENT

5.01 GENERAL

- A. The Contractor shall furnish all materials, including without limitations, equipment and completely or partially assembled items, required to complete the Work, except materials that are designated in the Contract Documents to be furnished by Sound Transit.
- B. Material and equipment furnished and installed for this Work shall be new and of a quality equal to or better than that specified.
- C. Sound Transit's acceptance of materials on the basis of compliance documentation, inspection or testing shall not relieve the Contractor of its obligation for conformance with the Contract.
- D. Manufacturers' warranties, instruction sheets, and parts lists, which are to be furnished with certain materials, shall be delivered to the Regional Program Manager before Substantial Completion.
- E. The materials and equipment provided and work performed by the Contractor shall strictly conform to the requirements contained in the Contract Documents. The burden of proof that the completed Work conforms to the Contract Documents shall be on the Contractor.
- F. The Contractor shall not use any permanently incorporated materials or equipment unless such use is approved in writing by Sound Transit. Where Contractor's request is granted for the use of certain materials, the Contractor shall properly use and maintain, and upon completion of its use, and at its own expense, recondition such materials or equipment to the satisfaction of Sound Transit.

5.02 MATERIALS CERTIFICATIONS

- A. All materials except materials specified by brand name or mark or manufacturer, furnished for use or incorporation in the Work, shall be covered by quality certifications, test results or other documentation as required by the Contract to establish compliance of the products with Contract requirements. Unless specific tests are required by the specifications, the Contractor may provide certifications to establish acceptability of the products furnished. Materials or products which require certification or other documentation shall not be incorporated until certifications have been delivered and the product approved by Sound Transit for incorporation.
- B. When the Contract requires documentation that materials comply with a given specification or Industry Standard, the Contractor shall provide documents that include a certification that the material conforms to all applicable Contract requirements. The documentation shall identify the material, list the applicable specifications and tests covered by the certification, describe the source of the material, and the quantity of material certified. The certifying document shall originate with manufacturer or producer of the material and shall bear the signature of a person qualified to perform the certification and authorized to sign on behalf of the manufacturer or producer. If applicable, the certificate shall list any marking or other identification of the certified material.
- C. For fabricated or manufactured materials, in addition to the documentation required by this Article, the Supplier shall furnish documentation that the fabrication or manufacturing process



complies with Contract requirements. The documentation shall be comparable to that required by this Article and shall list the name and address of the manufacturer or fabricator, the specific processes covered by the certification and procedures and equipment used, tests performed and testing frequency, and any other pertinent information required to demonstrate Contract compliance.

- D. For materials specified or approved by brand name or mark, an identifying label or other marking affixed by the manufacturer, which contains sufficient information to verify that the material furnished is the material specified, will be accepted as documentation in lieu of additional certification. Other physical characteristics or packaging information may be accepted at Sound Transit's discretion to demonstrate compliance.
- E. Sound Transit may require testing at the Contractor's expense of materials that are delivered without acceptable identification, certification or other required documentation. Work that incorporates materials for which the required documentation has not been provided will be considered nonconforming work.
- F. Sound Transit reserves the right to sample and test any material provided for use or incorporation into the Work. The Contractor shall furnish, at no cost to Sound Transit, all samples requested for testing. If Sound Transit's tests indicate that the material tested does not comply with Contract requirements, all materials covered by the same certification as the test sample shall be considered as non-conforming.
- G. If, at any time, Sound Transit deems the Contractor's testing is not adequate, the Contractor shall immediately take corrective action as directed by Sound Transit.

5.03 EQUIVALENT MATERIALS AND EQUIPMENT

When material or equipment is specified by one or more patents, brand names, or catalog numbers, it shall be understood that this is for the purpose of defining the performance or other salient requirements and shall be understood as if followed by the words "or equal," whether or not such words appear. Should the Contractor propose to furnish an "or equal" material or equipment then Contractor shall demonstrate conformance to the specified performance, testing, quality or dimensional requirements and suitability of the material or equipment for the use intended. The Regional Program Manager shall promptly review and approve or disapprove Contractor's proposed "or equal" material or equipment and any such approval shall not relieve Contractor of its obligations to achieve the specified performance, testing, quality or dimensional requirements and suitability of any approved "or equal" material or equipment for the use intended under this Contract.

5.04 SUBSTITUTIONS

- A. If material or equipment is specified as a sole source, Sound Transit will not consider substitutions.
- B. Materials or equipment of equal or better capacity, quality, or function may be allowed by Sound Transit, in its sole discretion, upon written request for substitution by the Contractor. Requests for substitution shall be made in accordance with these Contract Documents. Denial of a request for substitution is not grounds for any claim against Sound Transit.
- C. Except for sole source materials or equipment, the Contractor may offer material or equipment of equal or better quality and performance in substitution for those specified in the Contract Documents. Substitutions may be considered when a product becomes unavailable through no



fault of the Contractor. Sound Transit will consider offers for substitution only from the Contractor and not from Suppliers, distributors, manufacturers, or Subcontractors. If the offered substitution necessitates changes to or coordination with other portions of the Work, the Contractor, as a condition of Sound Transit's acceptance of the substitution, shall perform such changes or coordination at no additional cost to Sound Transit. Substitutions shall be submitted to Sound Transit in sufficient time to avoid delays to the Work. The Contractor shall be responsible for any delay or cost resulting from untimely submittal of substitution requests.

- D. The Contractor has the burden of demonstrating that the proposed substitution's function, quality, and performance will be equal in all respects to that of the specified item.
- E. A request for substitution constitutes a representation that the Contractor:
 - 1. Has investigated the proposed product and determined that it meets or exceeds the quality level of the specified product;
 - 2. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Sound Transit;
 - 3. Waives claims for additional costs or time extension that may subsequently become apparent; and
 - 4. Bears all Sound Transit costs of any redesign or modification to other systems, parts, equipment or components of the Contract Work resulting from the substitution.
- F. Substitutions will not be considered when they are indicated or implied on Drawings or product data submittals without a separate written request. Substitutions will not be considered when they are due to the Contractor's failure to order the specified items in a timely manner.
- G. Sound Transit shall be the sole judge of whether the offered substitution is in conformance with the Contract Documents for the Work and whether the changes to other portions of the Work necessitated by the incorporation of the offered substitution are acceptable. Any savings resulting from the use of a substituted item shall be passed on to Sound Transit in the form of a Value Engineering Cost Proposal.
- H. Sound Transit may, at its option, supply hardware, software, licenses, warranties, infrastructure, or materials outside of this Contract in accordance with design specifications provided by the Contractor. In the event that ST supplies any such items, they shall be delivered in new condition and working order and in a timely fashion to the Contractor at a location and date to be determined in advance and agreed in writing.

5.05 MANUFACTURER'S DIRECTIONS

Manufactured articles, materials, solvents, and equipment or other goods shall be transported, stored, applied, installed, connected, erected, adjusted, tested, operated, and maintained as recommended by the manufacturer, unless otherwise specified herein. Items shall be installed by the manufacturer where recommended or directed; however, the Contractor shall not be relieved of responsibility for such installation and costs.

5.06 RESPONSIBILITY FOR PERFORMANCE

Designation of brand names, components, and/or equipment in the Specifications shall not relieve the Contractor from responsibility for performance in accordance with contractual requirements. The



Contractor is responsible for notifying the Regional Program Manager of any inappropriate brand name, component, and/or equipment that may be called for in the Specifications, and for proposing a suitable alternate for consideration. Any substitution required by Sound Transit or the Regional Program Manager under this Article shall be implemented in accordance with the procedures set forth in Article 4, Changes and Change Order Process.

ARTICLE 6 PROSECUTION AND PROGRESS OF THE WORK

6.01 CONTRACT TIME

- A. All time requirements set forth in the Contract Documents are of the essence in the performance of this Contract. Unless specifically authorized in writing by Sound Transit, the Contractor is not allowed to perform Work or incur costs under this Contract until the effective date of the Notice to Proceed. The Contractor shall proceed with performance of the Work under this Contract immediately after the effective date of Notice to Proceed and shall continuously and diligently prosecute the Work and specified portions thereof to completion on or before the time or times set forth in this Contract. Any work performed by the Contractor prior to the effective date of Notice to Proceed shall be at the Contractor's risk. The Contract Time shall not be extended or reduced except by Change Order. The Contractor shall not be entitled to receive delay damages or costs for non-realization of anticipated early completion of the Work before a Contract specified Milestone date.
- B. The Contractor shall work such hours including overtime operations and/or extra shifts, within the parameters of permitted working days and hours, as may be necessary to meet its performance obligations under the Contract.
- C. The Contractor shall comply with all local requirements and permit conditions relating to acceptable hours of operation for work locations, and to noise control and abatement. If the Contractor deems that a waiver of any local requirements is necessary to enable the Contractor to perform the Work in accordance with the Contract requirements, it is the Contractor's responsibility to obtain said waivers, at no additional cost to Sound Transit.
- D. All time periods measured in days for Contract Milestones and Notices shall be based upon calendar days, unless specified otherwise. Time periods measured in days for each Contract milestone and notice shall be computed by excluding the day upon which the period begins to run and including the last day of the period unless the last day is Saturday, Sunday or a legal holiday as defined in RCW 1.16.050. If the last day of the period is a Saturday, Sunday or legal holiday, the period shall run until, and shall include, the next day that is not a Saturday, Sunday, or legal holiday.
- E. When an extension of time for completion of a milestone is granted, the extended date for completion of that milestone shall be calculated using the sum of the number of days originally allowed plus the number of days extension of time, commencing on the effective date of the Notice to Proceed.

6.02 PROJECT SCHEDULES

- A. Preparation and Submittal of Schedules
 - 1. The Contractor shall develop and deliver, in accordance with the Contract Documents, the various schedules and progress reports to Sound Transit for review and acceptance. Sound Transit's review shall not constitute approval or acceptance of the schedules' sequencing



or time of completion, nor of the Contractor's means and methods.

2. The Contractor shall not be entitled to payment, nor shall Sound Transit be required to make payment for any Contract Work, until the Project Schedule complies with the Contract requirements.

B. Float

1. Float is defined as the number of days by which a Work activity identified in the project schedules could be delayed from its "early start date" until the date upon which the Work activity would become a Critical Path Activity.
2. Any float (other than Sound Transit Controlled Float), slack time, or contingency within the Project Schedules (i.e., the difference in time between the Contract's early completion date and the Contract Milestone(s)) is not for the exclusive use of either Sound Transit or the Contractor, but is jointly owned by both and is a resource available to and shared by both parties as needed to meet Contract Milestones. Use of such jointly owned float shall be on a first come, first served basis and may be applied to delays caused (without limitation) by unmarked utility interferences or third parties.
3. The Contractor shall not sequester shared float through such strategies as extending activity duration estimates to consume available float, using preferential logic, or using extensive crew/resource sequencing, etc. Since float time, other than Sound Transit Controlled Float, within the schedule is jointly owned, no time extensions will be granted nor delay damages paid until a delay occurs which extends the work beyond the Contract Milestone(s). Since float time within the project schedule is jointly owned, it is acknowledged that Sound Transit-caused delays on the Contract may be offset by Sound Transit-caused time-savings. In such an event, the Contractor shall not be entitled to receive a time extension or delay damages until all Sound Transit-caused time-savings are exceeded.

6.03 FAILURE TO MAINTAIN PROGRESS

If, in the opinion of the Regional Program Manager, the Contractor is not maintaining its anticipated progress towards the completion of the Milestones and / or falls behind the approved project schedules, the Contractor shall take any and all steps necessary to improve its progress. If the Contractor fails to implement appropriate remedial actions, the Regional Program Manager may require the Contractor to increase the number of shifts, increase the number of crews and/or operations, initiate or increase overtime operations, increase days of work in the work week, increase the amount of facilities and equipment, or all of the foregoing. Sound Transit may also require the Contractor to submit for approval supplemental progress schedules that detail specific operation changes to be instituted to regain the approved schedule. The cost of the actions necessary to improve the Contractor's progress will be the responsibility of the Contractor and will not be reimbursed by Sound Transit.

6.04 PROTECTION OF PROPERTY

In addition to the requirements set forth elsewhere in the Contract documents, the Contractor shall comply with the following general requirements:

- A. Protect all public and private property, insofar as it may be endangered by the Contractor's operations, and take every reasonable precaution to avoid damage to such property.
- B. Restore and bear the cost of restoration of any public or private improvement, facility, structure



or land and landscaping inside or outside of the right-of-way or easement, which is damaged or injured directly or indirectly by or on account of an act, omission, or neglect in the execution of the Work; restore to a condition substantially equivalent to that existing before such damage or injury occurred, by repairing, replacing, rebuilding, or otherwise affecting restoration thereof, or if this is not feasible, make a suitable settlement with the owner of the damaged property. All restoration shall be governed by the requirements of local authorities, including but not limited to local codes, standards, and permit conditions.

- C. Give reasonable notice through the Regional Program Manager to occupants of buildings on property adjacent to the Work to permit the occupants to remove vehicles, trailers and other possessions as well as salvage or relocate facilities, trees, fences, sprinkler systems, or other improvements in the right-of-way which are designated for removal or which might be destroyed or damaged by work operations.
- D. Protect all trees, lawns, and facilities areas within the Right-of-Way or Easements that are designated for preservation.
- E. Not operate tracked equipment on the streets that are not scheduled for demolition and repaving under this Contract. In the event tracked equipment is used, the streets shall be fully protected.

6.05 PUBLIC SAFETY AND CONVENIENCE

The Contractor shall conduct its operations to ensure the least possible obstruction and inconvenience to the public, and the Contractor shall have no greater amount of work than the Contractor can prosecute properly with due regard to the rights of the public.

6.06 EMERGENCY WORK

- A. In an emergency affecting the safety of persons, the Work, or adjoining property, the Contractor, without special instructions or authorization from the Regional Program Manager, shall act to prevent such threatened loss or injury. In such an emergency, the Contractor shall perform such additional work as required. Any compensation claimed by the Contractor on account of emergency work shall be governed by Article 4, Changes and Change Order Process, or as deemed appropriate by the Regional Program Manager.
- B. If, during the Warranty period or during the progress of the Contract, the Contractor is absent from the locations of the Work at the time when a failure or faulty condition of the Contractor's work requires emergency action in the public interest, Sound Transit shall have the right to make repairs or corrections by itself or with other forces, as required, and Sound Transit may withhold from monies due the Contractor any costs which Sound Transit incurs from such emergency work.

6.07 PROTECTION OF UTILITIES

- A. Facilities and installations of various utilities may be present in the area of Work. In general, the locations of existing major utilities, whether aboveground or underground, are indicated on the Contract Drawings. This information has been obtained from utility maps and field surveys. Sound Transit does not guarantee the accuracy or completeness of the information. It is understood that other facilities not shown on the Contract Drawings may be encountered during the course of the work. In any case, most minor lines such as water, gas, electric power and communication, sewer services, and sprinkler irrigation lines may not be indicated. The Contractor shall protect any utility property that is on or adjacent to the Site or affected by the Work. Existing utilities, whether shown on the Contract Drawings or not, shall be maintained, relocated, rerouted,



removed, repaired, and restored as may be necessary by the Contractor in a manner satisfactory to owners and operators of the utilities and to Sound Transit. The Contractor shall contact the utility owners and arrange operations and schedules to minimize any interruption of utility services. The Contractor shall provide utility owners with notice as may be required by said utilities for location of utility services, scheduling of outages, or other utility activities needed to accommodate the Contractor's operations.

- B. The Contractor shall comply with the requirements of RCW 19.122, Underground Utilities, and take steps to ascertain the exact location of all facilities prior to doing work which may damage such facilities or interfere with their service. Where the location of a facility is not indicated, or is, in the opinion of the Regional Program Manager, doubtful, the Contractor may be directed to make such excavations and explorations as are necessary to ascertain the correct location.
- C. When performing work in streets and easements, the Contractor shall notify all affected utilities and local agencies of its proposed operations and properly coordinate and expedite the Work in such a manner as to cause the least amount of conflict and interference between the work and operations of other agencies. In the event of disruption or threat of disruption to utility services as a result of Work-related activities, regardless of cause, the Contractor shall notify Sound Transit immediately and shall notify and cooperate with the utility as well as any fire, police, or other public authority which may be affected by the disruption, as required by said utility, agency, or authority.
- D. The Contractor shall document all incidents of damage or impacts to utilities that are the result of Work activity, and report all such incidents to Sound Transit immediately with the date, time, place and type of property damage.
- E. The Contractor shall ensure that unauthorized personnel are strictly prohibited from the operation of utility or agency water valves and hydrants and shall obtain written permission from the applicable proper utility or agency prior to using any water hydrant or operating any water valve. No Work shall be undertaken around fire hydrants until provisions for continued access and service have been approved by the local fire authority.

6.08 TEMPORARY FACILITIES AND UTILITIES

- A. Temporary facilities and utilities shall be installed in compliance with federal, state, and local codes and statutes, at the Contractor's expense. The installation and maintenance of all temporary facilities will be subject to the approval of Sound Transit, and unless otherwise authorized in writing by Sound Transit, all such facilities shall be removed before Acceptance of the Work.
- B. Before proceeding with the erection of any facilities, including temporary structures, machinery, offices, and warehouses, the Contractor shall, at its expense, notify and furnish Sound Transit with such information and drawings as Sound Transit may request showing locations of such facilities, capacities and capabilities of the machinery and equipment, and projected utility requirements. Such facilities shall be fully adequate for the uses intended and fully comply with the requirements of the Contract.

6.09 TEMPORARY REARRANGEMENT OF UTILITIES

The Contractor may desire to rearrange utilities temporarily for Contractor's convenience. In this case, the Contractor shall make whatever arrangements are necessary with the owners of such utility or other facility for such rearrangement and bear all expenses in connection therewith. Further, the Contractor shall maintain all utility facilities placed by the Contractor in temporary locations, and all utilities within



the work area not required to be permanently rearranged but which are required to be shored or supported during the Work period. Unless otherwise indicated, the cost of such temporary rearrangement and maintenance shall be borne by the Contractor and no other compensation shall be due the Contractor for this work.

6.10 REARRANGEMENT OF UTILITIES BY OTHERS

Some or all of the utilities and other facilities, both above ground and below ground, which are required to be rearranged to accommodate the specified work, may be rearranged by other forces. In the event that rearrangement will be performed prior to the start of the Contractor's operations, or where the rearrangement must be coordinated with the Contractor's Work operations, the existing facilities which are to be rearranged by others will be indicated in the Contract Documents. Where such a rearrangement by others is indicated in the Contract Documents, the Contractor will have no liability for the cost of performing the work; however, the Contractor shall cooperate with those involved in such rearrangement. Wherever necessary, the work of the Contractor shall be coordinated with the rearrangement of utility or other facilities, and the Contractor shall make arrangements with the owner of such facilities for the coordination of the work. The Contractor shall anticipate potential delays by the utility owners and such reasonable delays shall not be the basis for additional compensation or time extensions. Only in the event that the utility owners fail or refuse to relocate or do so in a manner causing unreasonable delays to the critical path of the Work, may the Contractor request a time extension as provided in Article 4, Changes and Change Order Process.

6.11 EXPLORATION FOR UTILITIES

Where excavations or explorations to determine the location of utilities are directed by the Regional Program Manager and where it is determined by the Regional Program Manager that the rearrangement of an underground facility, which is not shown in the Contract Documents, is essential in order to accommodate the Work, the Regional Program Manager will provide for the rearrangement of such facility by other forces or, when so ordered by a CN-WD or CO, such rearrangement shall be performed by the Contractor and will be paid for as provided in Article 4, Changes and Change Order Process. In the event of unscheduled or unanticipated disruption(s) or threat of disruption(s) to utility services as a result of work-related activities, regardless of cause, the Contractor shall promptly notify Sound Transit, the affected utility, and fire and/or police agencies as necessary, and shall cooperate with those authorities. If temporary disruption(s) of utility service(s) is (are) unavoidable pursuant to the Work, the Contractor shall immediately notify the Regional Program Manager and secure authorization from Sound Transit before disrupting the utility service(s). Operation of utility or agency water valves and hydrants by unauthorized personnel is strictly prohibited without obtaining written permission from the applicable authority prior to using any water hydrant or operating any water valve. No work shall be undertaken around fire hydrants until provisions for continued access and service have been approved by the local fire authority.

6.12 SAFETY, FIRST AID AND SECURITY

- A. The Contractor shall be solely and completely responsible for conditions of the Site and the safety of all persons and property twenty-four (24) hours per day during the performance of the Work of this Contract. The Contractor shall:
 - 1. Maintain the site and perform the work in a manner that meets statutory, regulatory and common law requirements for the provision of a safe place to work and that does not pose unreasonable safety risks to employees of Sound Transit or the public;



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2. Initiate, maintain, and supervise all safety precautions and programs in connection with the performance of the Work;
 3. Protect the lives and health of employees performing the work and other persons who may be affected by the Work, and
 4. Prevent damage to and theft of materials, supplies, and equipment whether on-Site or stored off-Site.
- B. The Contractor shall comply with all applicable local, state and federal laws, ordinances, rules, regulations and orders of any public authority building and codes, and safety regulations bearing on the safety of people and property and their protection from damage, injury or loss. In the case of conflict, the more stringent requirement shall apply. Any review of the Contractor's performance conducted by Sound Transit or its consultants, does not and shall not be intended to include review of the adequacy of the Contractor's safety measures in, on, or near the Site.
 - C. The minimum safety requirements and procedures for accident prevention, safety and loss prevention, accident and incident reporting, and control for the Work are contained in other Contract Documents. Failure to comply with these minimum requirements may result in a material breach of contract. The minimum safety requirements contained in the Contract are intended to supplement, and not replace the Contractor's Safety and Security Program or Site Safety and Security Plan.
 - D. Prior to work, the Contractor shall have in place a Contractor's Safety and Security Program (CSSP). From this Program the Contractor shall prepare a Contractor's Site Safety and Security Plan (SSSP) identifying the methods by which all applicable safety and security requirements of this Contract and the applicable Federal, state and local requirements will be met. The Contractor shall ensure its Subcontractors have either a written safety program that conforms to the applicable requirements or formally adopt the Contractor's Safety and Security Program and Site Safety and Security Plan. The Contractor shall designate a Safety and Security Officer who shall be responsible for proper implementation of the CSSP and the SSSP. The Contractor shall submit a copy of its CSSP and SSSP to Sound Transit in accordance with the Contract Documents. Sound Transit's review of the CSSP or SSSP shall not be deemed to constitute approval or acceptance thereof and shall not transfer any responsibility for the safety of the Work site from the Contractor to Sound Transit.
 - E. The Contractor shall conduct a monthly safety meeting with all on-site Subcontractors and supervisors to discuss general and specific safety matters. The Contractor shall keep a log of such monthly safety meetings and provide it upon request by Sound Transit, including a sheet on which each attendee signed in and a description of the safety topics discussed at the meeting. The Contractor also shall conduct weekly safety or "tool box" meetings with employees of the Contractor and Subcontractors. The Contractor shall keep a log of such weekly safety meetings and provide it upon request by Sound Transit.
 - F. As the property owner, Sound Transit retains the right to grant consent to inspections pursuant to State and Federal law. This includes all accident and criminal investigations and general schedule, complaint, and follow-up safety and health inspections conducted by the State of Washington Department of Labor and Industries (WISHA) and the Federal Occupational and Health Administration (OSHA).



6.13 ORDER OF WORK

When required by the Contract Documents, the Contractor shall follow the sequence of operations set forth therein. Full compensation for conforming to such requirements will be considered as included in the prices paid for the various Contract items of the Work and no additional compensation will be allowed therefore.

6.14 LIABILITY FOR EXPENSES

The Contractor shall be liable to Sound Transit for expenses incurred due to the Contractor's failure to perform tasks in accordance with the Contract requirements. Such expenses may include costs to Sound Transit for providing personnel to perform tasks on behalf of the Contractor and shall be subject to an advance notice to the Contractor that such expenses are expected to be incurred. These expenses may be deducted as unilateral credit Change Orders or as part of the Change Orders issued in accordance with Article 4, Changes and Change Order Process.

ARTICLE 7 LEGAL REQUIREMENTS

7.01 HEADINGS

The parties agree that Article and Section headings and other titles used in this Contract are for convenience only, and are not to be used to interpret this Contract.

7.02 WAIVER OF CONTRACT TERMS

No act or failure to act on the part of either party with respect to the exercise or enforcement of any provision of this Contract (including but not limited to rights or remedies conferred upon either party under this Contract, performance, or standards) shall be deemed to be a waiver on the part of that party of any provision of this Contract. No waiver of one provision by any party shall act as a waiver of any other provision or as a subsequent waiver of the same provision. No waiver shall be effective against either party except an express waiver in writing.

7.03 PROHIBITED INTEREST

The Contractor shall not offer or confer any interest, direct or indirect, in this Agreement or the proceeds thereof (or hire or retain in any way, directly or indirectly) to or on any member, officer, or employee of Sound Transit or its governing body, or of any of its component agencies during such person's tenure or one year thereafter, unless such interest has been disclosed in writing to Sound Transit and Sound Transit has determined that no prohibited conflict of interest or ethical violation exists in the circumstances.

7.04 SUCCESSOR'S OBLIGATIONS

The grants, covenants, provisos and claims, rights, powers, privileges and liabilities contained in the Contract shall be read and held as made by and with, and granted to and imposed upon, the Contractor and Sound Transit and their respective heirs, executors, administrators, successors and assigns. A Surety under the Performance Bond allowed by Sound Transit to complete the Work in the event of a default, termination, or other failure of the Contractor to perform the Work, shall comply fully with all Contract requirements and shall not use the defaulted or terminated Contractor for continuation or completion of the Work unless Sound Transit consents.

7.05 ASSIGNMENT OF CONTRACT

The Contract shall not be assigned in whole or in part by the Contractor without the prior consent of Sound



Transit. To the maximum extent permitted by law, involuntary assignment of the Contract caused by the Contractor being adjudged bankrupt, assignment of the Contract for the benefit of the Contractor's creditors, or appointment of a receiver on account of the Contractor's insolvency shall be considered as a failure to comply with the provisions of the Contract and subject to the termination provisions contained herein.

7.06 JOINT VENTURE CONTRACTOR

- A. In the event the Contractor is a joint venture of two or more partners, the grants, covenants, provisos and claims, rights, power, privileges, and liabilities of the Contract shall be construed and held to be several as well as joint. Any notice, order, direction, request, or any communication given by Sound Transit to the Contractor under this Contract shall be well and sufficiently given to all persons being the Contractor if given to any one or more of such joint venture partners. Any notice, request or other communication given by any one of such joint venture partners to Sound Transit under this Contract shall be deemed to have been given by and shall bind all joint venture partners being the Contractor.
- B. In the event of the dissolution of the joint venture Contractor, Sound Transit shall have the unqualified right to select which joint venture partner(s), if any, shall continue with the Work under this Contract. Such selected partner(s) shall assume all liabilities, obligations, rights, and benefits of the Contractor under this Contract. Dissolution of the joint venture shall not be effected without prior consultation with Sound Transit. In the event of failure or inability of any joint venture partner(s) to continue performance under this Contract, the remaining joint venture partner(s) shall perform all services and Work and assume all liabilities, obligations, rights, and benefits to the Contractor under this Contract. Nothing in this Article shall be construed or interpreted to limit Sound Transit's rights under this Contract or by law to determine whether the Contractor or any joint venture partner thereof has performed within the terms of this Contract.

7.07 CONFLICT OF INTEREST

By submission of its Proposal, the Contractor covenants that it has no direct or indirect pecuniary or proprietary interest, and that it shall not acquire any interest that conflicts in any manner or degree with the Work, materials to be provided or services required to be performed under this Contract. Furthermore, the Contractor shall not employ any person or agent having any such conflict of interest. In the event that the Contractor or its agents, employees or representatives hereafter acquires such a conflict of interest, it shall immediately disclose in writing such interest to Sound Transit and take action immediately to eliminate the conflict or to withdraw from this Contract, as Sound Transit requests. The Contractor shall not employ any consultant who is concurrently employed by Sound Transit or by Sound Transit's consultants (including, but not limited to, surveyors, engineers, architects, and testing laboratories), without first obtaining Sound Transit's approval in writing.

7.08 PERMITS, FEES, AND NOTICES

- A. Except as otherwise indicated, the Contractor shall procure all necessary permits and licenses, pay all charges and fees, comply with all permit conditions and give all notices necessary and incident to the due and lawful prosecution of the Work. Failure of the Contractor to perform any of the requirements specified herein shall result in the Contractor's liability as set forth herein. Upon written request the Contractor shall furnish Sound Transit with satisfactory documentation evidencing compliance with the applicable requirements. Contractor shall sign as co-permittee on any stormwater permits issued for the Work regardless of whether Sound Transit obtains such permit(s) prior to or after execution of this Contract.



- B. The Contractor shall be fully liable to Sound Transit and any permit issuing authority for any costs and damages arising out of or relating to Contractor's failure to obtain a permit or for any failure to comply with the terms of any permit, including (1) costs associated with completing the Work authorized and/or required by any government permit within the time or times, if any, stipulated in such permit and any fees or penalties assessed by the permit issuing authority, (2) any damages or costs assessed under Article 7.14, and (3) delays to the Work caused by failure to timely complete Work, or any separate part thereof. As used herein, the term "permit issuing authority" includes any authority whose permit or license is necessary and incident to the due and lawful prosecution of the Work.
- C. The Contractor shall be responsible for identifying, securing, and paying for all necessary licenses, fees, inspections, waivers, utility connection fees, building and other permits, and similar authorizations from governmental and utility authorities required to fulfill the Contract requirements and the Contractor's obligations except for those identified in the Contract as being furnished or paid for by Sound Transit.
- D. The Contractor shall maintain at the Work Site copies of all permits, licenses, certificates, or other documentation demonstrating compliance with any applicable statute, regulation, ordinance, or rule or other requirements of this Contract. The Contractor shall provide copies of such documentation to Sound Transit promptly upon request.
- E. The Contractor shall be liable for and shall pay all fines, assessments, and other costs resulting from the Contractor's violation of any applicable federal, state, or local statute, regulation, ordinance, or other restriction.
- F. The Contractor shall not be entitled to any additional compensation or extension of time as a result of the Contractor's violation of applicable regulatory requirements. If a delay results from such a violation, the Contractor shall be responsible for all costs including, but not limited to, overtime premium associated with regaining the time lost as a result of such delay, and any damages, including liquidated damages, which may result from Contractor's failure to comply with the project schedule as a result of such delay.

7.09 PUBLICITY AND ADVERTISING

The Contractor, its Subcontractors, and Suppliers shall not publish nor cause to be published any advertisement or other material, including news releases and technical papers, regarding the subject matter of this Contract at any time without the prior written authorization of Sound Transit. The Contractor shall not display any signs, posters, or any other advertising matter in or on the Work or on or around the site other than those prescribed by the Contract or by law without the prior written authorization of Sound Transit. In addition, advertising or other copy mentioning Sound Transit or quoting the opinions of any of its employees shall not be released before such copy is approved in writing by Sound Transit. Any material proposed for publication shall be factual and shall not state or imply endorsement by Sound Transit of any firm, service or product.

7.10 LIABILITY AND INDEMNIFICATION

- A. The Contractor shall comply, and require its subcontractors to comply, with all Sound Transit resolutions, motions and federal, state, and local laws, regulations, and ordinances applicable to the work and services to be performed under this Agreement.
- B. Insurance Coverage, whether owner-provided, contractor-provided, or otherwise, shall not relieve the Contractor, Subcontractors or Suppliers of their responsibility for liability or damages



to Sound Transit under the Contract Documents.

- C. The Contractor shall be solely responsible for any claims for wages or compensation by the Contractor employees, agents, and representatives, including subcontractors, and save and hold Sound Transit harmless therefrom.
- D. The Contractor shall indemnify, defend and hold Sound Transit harmless for any costs and pay any damages or judgments related to any claim brought by any person employed in any capacity by the Contractor, Subcontractors, or any agent of Contractor or Subcontractor on the Work, with respect to the payment of wages, salaries, or other compensation or benefits, including but not limited to benefits such as medical, health, retirement, vacation, sick leave, etc.
- E. To the maximum extent permitted by law, the Contractor agrees to defend, release, indemnify and save harmless Sound Transit, its successors and assigns, and its and their shareholders, officers, officials, directors, contractors, and employees, and the ORCA partner agencies (collectively "the Indemnified Parties") from and against any liability including any and all suits, claims, actions, losses, costs, penalties, response costs, and damages of whatsoever kind or nature to the extent arising out of, in connection with, or incident to the Contractor's negligent or intentionally wrongful performance or negligent or intentionally wrongful failure to perform this Contract or the Work, or Contractor's failure to comply with requirements of the Contract Documents; provided, however, that if the provisions of RCW 4.24.115 apply to the Work and any injuries to persons or property arising out of performance of this Agreement are caused by or result from the concurrent negligence of the Contractor or its Subcontractors, agents or employees, and an Indemnified Party, the indemnification applies only to the extent of the negligence of the Contractor, its Subcontractors, agents or employees.

THE CONTRACTOR SPECIFICALLY ASSUMES POTENTIAL LIABILITY FOR ACTIONS BROUGHT BY THE CONTRACTOR'S OWN EMPLOYEES OR FORMER EMPLOYEES AGAINST ANY INDEMNIFIED PARTY, AND FOR THAT PURPOSE THE CONTRACTOR SPECIFICALLY WAIVES ALL IMMUNITY AND LIMITATIONS ON LIABILITY UNDER THE WORKERS COMPENSATION ACT, RCW TITLE 51, OR ANY INDUSTRIAL INSURANCE ACT, DISABILITY BENEFIT ACT OR OTHER EMPLOYEE BENEFIT ACT OF ANY JURISDICTION THAT WOULD OTHERWISE BE APPLICABLE IN THE CASE OF SUCH CLAIM. THIS INDEMNITY OBLIGATION SHALL NOT BE LIMITED BY ANY LIMITATION ON THE AMOUNT OR TYPE OF DAMAGES, COMPENSATION OR BENEFITS PAYABLE BY OR FOR CONTRACTOR OR A SUBCONTRACTOR UNDER WORKERS' COMPENSATION, DISABILITY BENEFIT OR OTHER EMPLOYEE BENEFITS LAWS. THE CONTRACTOR RECOGNIZES THAT THIS WAIVER WAS SPECIFICALLY ENTERED INTO AND WAS THE SUBJECT OF MUTUAL NEGOTIATION. PROVIDED, HOWEVER, THE CONTRACTOR'S WAIVER OF IMMUNITY BY THE PROVISIONS OF THIS PARAGRAPH EXTENDS ONLY TO CLAIMS AGAINST THE CONTRACTOR BY SOUND TRANSIT, AND DOES NOT INCLUDE, OR EXTEND TO, ANY CLAIMS BY THE CONTRACTOR'S EMPLOYEE DIRECTLY AGAINST THE CONTRACTOR.

- F. The Contractor further agrees to assume the defense of the Indemnified Parties with legal counsel acceptable to Sound Transit, whose acceptance shall not be unreasonably withheld or delayed, in all legal or claim proceedings arising out of, in connection with, or incidental to the performance of this Agreement or the Work. The Contractor shall pay all defense expenses, including attorneys' fees, expert fees, and costs (collectively "defense costs") incurred directly or indirectly on account of such litigation or claims, and the Contractor shall satisfy any judgment rendered in connection therewith. In the event that any lien is placed upon the property of any of the Indemnified Parties as a result of such suits or legal proceedings, the Contractor agrees to immediately cause the same to be dissolved and discharged by giving bond or otherwise.



- G. The Contractor may settle any suit, claim, action, loss, cost, penalty, or damages, subject to the approval of Sound Transit, whose approval shall not be unreasonably withheld, if such settlement completely and forever extinguishes any and all liability of the Indemnified Parties. In the event of litigation between the parties to enforce the rights under this Article, reasonable attorney fees shall be allowed to the prevailing party.
- H. The Contractor further agrees that any review and/or approval by Sound Transit and/or others hereunder shall not relieve the Contractor of any of its obligations to perform to generally accepted professional standards applicable to the types of services and work provided hereunder or in any way diminish its liability for the performance of such obligations or its obligations to provide the indemnities hereunder.
- I. The foregoing indemnities and duties to defend shall survive the termination of this Agreement and final payment hereunder, and are in addition to any other rights or remedies which Sound Transit and/or any of the Indemnified Parties may have by law or under this Agreement. In the event of any claim or demand made against any Indemnified Party hereunder, Sound Transit may, in its sole discretion, reserve, retain or apply any monies due to the Contractor under the Agreement for the purpose of resolving such claims; provided, however, that Sound Transit may release such funds if the Contractor provides Sound Transit with adequate assurance of the protection of Sound Transit's and the other Indemnified Parties' interests.
- J. The Contractor shall not assign any interest, obligation, or benefit in this Agreement or transfer any interest in the same, whether by assignment or novation, without prior written consent by Sound Transit; provided, however, that claims for money due or to become due to the Contractor from Sound Transit under this Agreement may be assigned to a bank, trust company, or other financial institution without such approval. Notice of any such claim assignment shall be furnished promptly to Sound Transit.
- K. Sound Transit's rights and remedies in this Agreement are in addition to any other rights and remedies provided by law.
- L. LIMITATION OF LIABILITY

ANYTHING IN THIS AGREEMENT TO THE CONTRARY NOTWITHSTANDING, THE LIABILITY OF CONTRACTOR, ITS AFFILIATES, EMPLOYEES, SUBCONTRACTORS OR AGENTS FOR ANY LOSS, DAMAGES (INCLUDING LIQUIDATED DAMAGES PURSUANT TO THIS CONTRACT), COSTS OR EXPENSES OF WHATSOEVER NATURE ARISING OUT OF OR RELATED TO THIS AGREEMENT SHALL BE LIMITED TO TWO TIMES THE TOTAL CONTRACT PRICE SET FORTH IN THIS AGREEMENT. UNDER NO CIRCUMSTANCES SHALL EITHER PARTY BE LIABLE TO THE OTHER PARTY FOR CONSEQUENTIAL, PUNITIVE OR INCIDENTAL DAMAGES, INCLUDING WITHOUT LIMITATION, PRODUCTION FAILURE, LOSS OF UTILIZATION, LOSS OF ORDERS, LOSS OF PROFIT, AND ALL OTHER SUCH INDIRECT DAMAGES.

7.11 OWNERSHIP OF WORK PRODUCT

Unless otherwise more specifically described in the Contract Documents, all information, including drawings, specifications and other data, prepared or developed by the Contractor specifically for Sound Transit in performance of the Work, whether or not required to be furnished to Sound Transit, shall be the property of Sound Transit and may be used by Sound Transit without restriction. The Contractor hereby assigns and transfers to Sound Transit any and all copyrights for such materials. Prior to the completion of the Work, the Contractor shall provide Sound Transit with a list of all such information which has not previously been furnished to Sound Transit. Sound Transit will then have thirty (30) days to advise



the Contractor which information shall constitute Sound Transit property. Before requesting Acceptance, the Contractor shall deliver to Sound Transit the information that has been identified to constitute Sound Transit property.

7.12 INTELLECTUAL PROPERTY INDEMNIFICATION AND WARRANTY OF GOOD TITLE

A. Intellectual Property Indemnification

The Contractor shall assume all risks, including claims of infringement, arising from the use of patented or copyrighted materials, equipment, devices or processes not furnished by Sound Transit or any other ORCA partner agency, used on or incorporated in the Work by Contractor, and shall indemnify, defend and hold harmless Sound Transit and any other ORCA partner agency (and its/their officers, directors, agents or employees) to the maximum extent permitted by law from and against any and all claims, liabilities, losses, damages or expenses (including attorneys' fees and related costs, whether or not litigation has commenced), whether direct or indirect, arising out of, relating to or in connection with any claim or allegation that the ownership, possession or use of any software, materials, equipment, devices, processes or other materials provided by the Contractor under this Agreement infringe or violate the patent, copyright, trade-secret or other intellectual-property or proprietary rights of any third party. In case any such software, materials, equipment, devices, processes or other materials are held to constitute an infringement and their use enjoined, then the Contractor, at the Contractor's sole cost and expense, shall do one of the following:

1. Secure for Sound Transit the right to continue using the software, materials, equipment, devices or processes by suspension of the injunction or by procuring a royalty-free license, or licenses.
2. Replace such software, materials, equipment, devices or processes with non-infringing software, materials, equipment, devices or processes.
3. Modify them so that they become non-infringing.
4. Remove the enjoined software materials, equipment, devices or processes and refund the sums paid for them without prejudice to any other rights of Sound Transit.

If the amount of time necessary to proceed with one of these options is deemed unreasonably excessive by Sound Transit, then Sound Transit may direct the Contractor to select another option or risk default.

Sound Transit shall advise the Contractor of any pending or threatened patent suit, it knows or should have known, related to the Contract against Sound Transit and provide all information available. The Contractor's obligations under this section are discharged with respect to any patent or copyright infringement claim based upon: (a) any product that is manufactured to Sound Transit's or those for whom it is responsible, design in accordance with the details contained in the Contract Documents; or (b) any products that have been altered, modified, or revised by any party other than Contractor or Contractor's agent, and such alteration, modification or revision is the basis of the claim. As to any product or use described in the preceding sentence, Contractor assumes no liability whatsoever for patent infringement or the unauthorized use of Products, including, without limitation, a breach of the provisions of the Contract and the failure of Sound Transit to implement any update provided by Contractor that would have prevented the claim, except to the extent that the Contractor knew, or should have known of the infringement and failed to promptly notify Sound Transit thereof. Notwithstanding the foregoing, with respect to any products, or portions thereof, which are not manufactured or developed by Contractor and are not manufactured to Contractor's



design specifications, only the indemnity of the manufacturer/developer, if any, shall apply.

B. Intellectual Property Warranty

The Contractor represents and warrants that any use of the Work, or any part thereof, by Sound Transit (or its officers, directors, agents, employees or transit users) will not infringe or violate the patent, copyright, trade-secret or other intellectual-property or proprietary rights of any third party.

The Contractor further represents and warrants that it has or will have all appropriate licenses, agreements or ownership rights pertaining to all patent, copyright, trade-secret or other intellectual-property or proprietary rights needed for the performance of its obligations under the Contract — including without limitation that it will have all necessary rights to use patentable or copyrightable materials, equipment, devices or processes not furnished by Sound Transit used on or incorporated in the Work under the Contract. The Contractor assumes all risks arising from the use of any such patented or copyrighted materials, equipment, devices or processes.

C. Right to Invention

If any invention, improvement, or discovery of the Contractor is conceived or first reduced to practice in the course of Work uniquely and specific to Sound Transit or under this Contract, and such invention, improvement, or discovery may be patented under the laws of the United States of America or any foreign country, the Contractor shall immediately notify Sound Transit and provide a detailed report. The rights and responsibilities of Sound Transit, the Contractor, and the federal government with respect to such invention, improvement, or discovery will be determined in accordance with applicable federal laws, regulations, policies and any grant agreements. Except for Contractor's use in conjunction with the Work required by this Contract, the Contractor may not publish or reproduce such data in whole or in part, or in any manner or form, nor may the Contractor authorize others to do so, without the written consent of Sound Transit.

This section shall survive any expiration or termination of this Contract.

7.13 SEVERABILITY

If a provision of this Contract is found by a court of competent jurisdiction to be unenforceable, the validity and enforceability of the remaining provisions shall remain unaffected, and the parties shall negotiate an equitable adjustment of this Contract so that the purposes of this Contract are effected.

7.14 COMPLIANCE WITH LAWS AND REGULATIONS

- A.** The Contractor shall keep fully informed concerning all governmental requirements, including but not limited to all State, federal, county and municipal laws, ordinances and regulations which in any manner affect the performance of the Work, or the materials and equipment used in the Work, or which in any way affect those engaged or employed to work in connection with the Work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same including the specific legal requirements referenced in the Contract Documents. The Contractor shall at all times comply with, and shall cause all the Contractor's agents, employees and Subcontractors to comply with all such governmental requirements, and shall indemnify, defend and hold harmless Sound Transit and all of its directors, officers, agents, and employees, and the ORCA partner agencies against all claims, liabilities, losses, damages and expenses (including attorney's fees and related costs) arising from or based on the violation of any such governmental requirement whether by the Contractor or contractor's agents, employees or Subcontractors. If any discrepancy or inconsistency is discovered in the Contract Documents for the work in relation to any such governmental requirements, the Contractor shall immediately



report the same to the Regional Program Manager in writing.

- B. The Contractor shall comply and, to the best of its ability, shall require its subcontractors to comply with all Sound Transit policies applicable to the Work to be performed under this Agreement (for example Sound Transit's policy on equal employment opportunity, harassment, and ADA compliance). Copies of Sound Transit policies shall be supplied to and acknowledged by Contractor. as a condition of the enforcement of this section.
- C. The Contractor shall exercise reasonable efforts to stay apprised of changes to said governmental requirements. The Contractor shall bring any such changes to the attention of the Regional Program Manager and identify with particularity the effect of such changes on the Work. Impacts of time or cost from such change will be investigated and managed through the Change Order process. Any such changed law, ordinance, resolution, or regulation supersedes any conflicting provisions of this Contract.
- D. Suspected Violation of Governmental Requirements - If the Contractor knows or has reason to know of any suspected violation of Governmental Requirement by itself or any Subcontractor under the Contract, the Contractor must promptly and fully investigate and immediately report the existence of such investigation to Sound Transit. The Contractor shall fully report, in writing, to Sound Transit the facts and information ascertained in the investigation and shall allow Sound Transit to examine all of Contractor's documentation related to the investigation. If Sound Transit reasonably believes access to any individual worker is necessary for a Sound Transit investigation, whether such worker is an employee of Contractor or a Subcontractor of any tier, Contractor must make available, within 2 days of a written request, such worker for interview by Sound Transit's representative who has been designated in the written request. Exceptions shall be made by Sound Transit should the Contractor demonstrate an acceptable attempt to contact and schedule the worker for interview in a timely manner. The Contractor may withhold communications properly considered attorney-client privileged.
- E. The Contractor is liable for all actual costs reasonably incurred by Sound Transit directly related to Sound Transit's response to or necessary actions required for the violation of any Governmental Requirement or a settlement by Contractor associated with such alleged violation, including the total personnel costs of Sound Transit employees and other Sound Transit costs, outside attorneys' fees and costs, and outside consultants' fees and costs. Sound Transit may withhold such amounts from sums otherwise payable to Contractor under the Contract. For purposes of this Article 7.14:
 - 1. Environmental Violation occurs when any federal, state, or local governmental entity or other applicable environmental permitting authority has found any portion of the Work or Contractor's performance thereof to be in violation of any environmental permit or other applicable federal, state, or local environmental law, regulation, or requirement.
 - 2. Safety Violation occurs when any federal, state, or local governmental entity or other applicable authority has found any portion of the Work or Contractor's performance thereof to be in violation of any applicable federal, state, or local safety law, regulation, or requirement.
 - 3. Violations of Title VI occur (a) when any federal, state, or local governmental entity or other applicable authority has found the Contractor or any subcontractor to have been in violation of Title VI or any other anti-discrimination or equal opportunity law, or (b) when Sound Transit has hired an independent investigator who determines that sufficient facts



exist to support a *prima facie* violation of Title VI or any other anti-discrimination or equal opportunity law.

7.15 [INTENTIONALLY OMITTED]

7.16 [INTENTIONALLY OMITTED]

7.17 [INTENTIONALLY OMITTED]

7.18 ENVIRONMENTAL COMPLIANCE AND SUSTAINABILITY

Sound Transit has an established environmental policy, a sustainability initiative, and an environmental management system certified under the International Standards Organization (ISO) 14000. Sound Transit is committed to protecting the environment for present and future generations. The purposes of these policies are to:

- A. Implement environmental stewardship and sustainable development
- B. Reduce environmental risks and liabilities
- C. Enhance image with public, regulators, agencies and stakeholders
- D. Ensure regulatory compliance
- E. Improve environmental performance
- F. Simplify environmental communication

Sound Transit is committed to meeting or exceeding all environmental commitments during all phases of the project. The purpose is to prevent environmental degradation, reduce work delays and cost increases, minimize negative publicity, and reduce the number of upset citizens, landowners, and regulating agencies.

Within thirty (30) days of effective date of the Notice to Proceed, Sound Transit shall provide to the Contractor a copy of Sound Transit's environmental policy, its sustainability initiative, and its environmental management system.

7.19 TAXES

- A. Washington State Taxes – Contractor shall comply with the laws of the state of Washington and the policies of the Washington State Department of Revenue.
- B. Federal Excise Taxes - Sound Transit is exempt from Federal Excise Taxes and an exemption certification will be furnished upon request.
- C. Other Taxes - The Contract Price includes all other taxes applicable to the Contractor's completion of the Work, including without limitation, B&O taxes applicable to all tiers performing the Work.
- D. No increase will be made to the amount to be paid by Sound Transit under this Contract because of any misunderstanding by or lack of knowledge of the Contractor as to liability for, or the amount of, any taxes for which the Contractor is liable or responsible by law or under this Contract.

7.20 LIENS PROHIBITED

The Contractor shall not permit any lien or claim to be filed or prosecuted against Sound Transit, its



property or its right-of-way on account of any labor or material furnished or any other reason for work arising out of this Contract. If any lien shall be filed, the Contractor shall satisfy, discharge and extinguish or cause such lien to be satisfied, discharged and extinguished immediately, including at Sound Transit's option obtaining a court order extinguishing the lien, as a condition precedent to release of retainage and/or final payment.

7.21 PUBLIC DISCLOSURE

Pursuant to Chapter 42.56 RCW, documents related to this Contract shall be considered public records and with limited exceptions will be available for inspection and copying by the public. Contractor must specifically designate and clearly label as "CONFIDENTIAL" any and all materials or portions thereof they deem to contain trade secrets or other proprietary information, which is exempt from public inspection and copying. Contractor must provide the legal basis for the exemption to Sound Transit upon request. If a document does not clearly identify the "CONFIDENTIAL" portions, Sound Transit will not notify the Contractor that the documents will be made available for inspection. If a request is made for disclosure of material or any portion marked "CONFIDENTIAL," Sound Transit will determine whether the material should be made available under the law. If Sound Transit determines that the material is not exempt and may be disclosed, Sound Transit will notify the Contractor of the request and allow the Contractor 10 working days to take appropriate action pursuant to RCW 42.56.540. If the Contractor fails or neglects to take such action within said period, Sound Transit may release the portions of the documents deemed subject to disclosure. To the extent that Sound Transit withholds from disclosure all or any portion of Contractor's documents at Contractor's request, Contractor shall indemnify, defend and hold harmless Sound Transit from all damages, penalties, attorneys' fees and costs Sound Transit incurs related to withholding information from public disclosure. By executing this Contract, the Contractor consents to the procedure outlined in this paragraph and shall have no claim against Sound Transit by reason of actions taken under this procedure.

7.22 [INTENTIONALLY OMITTED]

7.23 [INTENTIONALLY OMITTED]

7.24 [INTENTIONALLY OMITTED]

7.25 [INTENTIONALLY OMITTED]

7.26 [INTENTIONALLY OMITTED]

7.27 CONTRACTOR ACQUISITION AND / OR MERGER

If the Contractor executing this Agreement ceases to exist as an independent business entity by means of acquisition by and / or merger with a successor or otherwise, the Contractor shall notify Sound Transit in writing not less than thirty (30) days prior to the effective date of the circumstance causing the cessation of the independent business status. Sound Transit reserves the right to take steps to ensure it has contractual privity with the successor. The Contractor shall cooperate with this effort by agreeing to an assignment, a novation, or other document required to transfer the rights and responsibilities of the Contractor to the successor.

7.28 APPLICABLE LAWS AND JURISDICTION

This Agreement and all provisions hereof shall be interpreted in accordance with the laws of the State of Washington and, to the extent incorporated into (or made applicable to the Work by) the Contract Documents, the laws of the United States of America. Subject to the provisions herein regarding exhaustion of administrative remedies, the Superior Court of King County, Washington, shall have



exclusive jurisdiction and venue over any legal action arising under this Agreement.

7.29 INTELLECTUAL PROPERTY PROVISIONS OF SOFTWARE SYSTEM

A. Contractor Software

Contractor grants to Sound Transit a perpetual, ORCA specific, royalty-free, non-exclusive and irrevocable license for Sound Transit (including without limitation its officers, directors, employees, and agents) to install, use, copy, modify, and maintain the Software system (and each and every part of the system) in accordance with the terms and conditions of its End User License incorporated by reference in Section 07 of this Agreement.

B. Materials such as Technical Data

Contractor further grants to Sound Transit a perpetual, unlimited, royalty-free, non-exclusive and irrevocable license for Sound Transit (including without limitation its officers, directors, employees and agents) to use, copy, distribute, and modify (and create derivative works from) all Materials such as Technical Data.

C. Third Party Software

In providing the Software System, Contractor will use only that Third Party Software that has been expressly approved in writing by Sound Transit. Contractor will procure, maintain, and otherwise be responsible for all licenses for Sound Transit, in Sound Transit's name, for any such Third Party Software reasonably necessary to operate or maintain the Software System. Sound Transit retains sole, ultimate authority on executing and entering into any such licenses. Contractor shall provide to Sound Transit copies of such licenses, along with any related software or license documentation. To the extent that any other licenses or permissions are reasonably desirable or necessary for Sound Transit to operate or maintain the Software System, Contractor hereby grants to Sound Transit to the maximum extent within its rights – or will procure for Sound Transit, in Sound Transit's name, to the maximum extent reasonably negotiable and at Sound Transit's expense – any such licenses and permissions.

D. Right to Sublicense

1. Sound Transit may, in its sole discretion and without incurring any further or additional charges, sublicense any of its rights under this Agreement as reasonably necessary to operate or maintain the ORCA specific Software System, including without limitation: to third-party vendors, contractors, or consultants whom Sound Transit may retain to assist in operation or maintenance of the Software System; and to other transportation entities as reasonably desirable or necessary to implement back-up systems or disaster planning.
2. Licenses Under Bankruptcy Code: All rights and licenses granted under or pursuant to this Agreement are and shall be deemed to be, for purposes of Section 365(n) of the U.S. Bankruptcy Code, licenses of rights to "intellectual property," as defined under Section 101 of the U.S. Bankruptcy Code. The parties agree that Sound Transit, as a licensee of such rights under this Agreement, shall retain and may fully exercise all of its rights and elections under the U.S. Bankruptcy Code; however, nothing herein shall be deemed to constitute a present exercise of such rights and elections.

E. Source Code Escrow

Contractor agrees that as a condition of Final System Acceptance it will deposit the source code



for any Contractor Software into escrow (including all updates, versions, releases, and upgrades licensed under this Agreement, with a source code agent, nationally recognized, selected by Contractor capable of providing Level 2 certification/verification or its equivalent. Sound Transit shall become a party to and be governed by the terms of the escrow agreement. Deposit shall be at reasonable periodic intervals based generally on the pace at which the software is being developed or changed – and shall include any and all subsequent updates, versions, releases, and upgrades licensed under this Agreement. The source code escrow agreement shall remain in place, and source code deposits shall be updated and maintained, for as long as Sound Transit and Contractor have entered into a software maintenance or support agreement. The applicable source code will be released to Sound Transit (or any Contractor acting on its behalf), according to the terms of the escrow agreement, in the event of nonperformance or the inability of Contractor to execute or maintain the portion of the Intellectual Property of Contractor. Contractor agrees that Sound Transit (or any Contractor acting on its behalf) may use the source code to maintain, fix, or modify Contractor Software as reasonably necessary to operate or maintain any portions of the Software System. Contractor and Sound Transit will separately execute an escrow agreement concurrently with this Agreement, incorporated herein as Attachment F. Contractor shall be solely responsible for any costs related to the source code escrow.

ARTICLE 8 INSURANCE

See Section 03 for insurance requirements.

ARTICLE 9 PAYMENT

9.01 COMPLIANCE PREREQUISITE TO PAYMENT

- A. Sound Transit shall pay the Contractor Partial Payments for completed Work in accordance with the Partial Payment Schedule as described in Section 9.02, Partial Payment Schedule. Payment to the Contractor shall be based upon Work performed in conformance with the Contract as approved by Sound Transit's review of the payment request. Sound Transit will not approve payments for portions of the Work not performed in full compliance with provisions of the Contract, and applicable laws, ordinances, resolutions, regulations, permits and/or easements, and may withhold such payments to the Contractor in accordance with Section 9.06, Withholding Payments.
- B. The Contractor shall be responsible, and have no claim whatsoever against Sound Transit, for all costs and effects of delays resulting or arising from suspension and/or Stop Work orders issued by Sound Transit and/or any governmental authority as a result of incidents of non-compliance with the Contract or any laws, ordinances, or regulations by the Contractor and/or its Subcontractors and Suppliers. This paragraph shall be void and of no effect in the event that Sound Transit is found to have unreasonably and/or wrongfully issued a suspension or Stop Work order to Contractor.

9.02 MILESTONE OR PARTIAL PAYMENT SCHEDULE

The Milestone or Partial Payment Schedule for the Contract Price is set forth in Section 08 Contract Price Schedule. The Milestone or Partial Payment Schedule is prepared in accordance with the requirements of the Contract Documents. The Contractor warrants that such values are accurate representations and allocations of the value of the work in each delivery or performance increment on which Sound Transit may rely.



9.03 MILESTONE OR PARTIAL PAYMENTS

- A. The Contractor shall submit no more than one invoice a month, and each invoice may include any number and combination of delivery or performance increments that are completed that month. Invoices need not be based on sequential delivery or performance increments. Each invoice shall include the contract number and purchase order number, and shall be clearly itemized and trackable to the Contract Pricing.

If requested by Sound Transit, the Contractor shall provide such additional data as may be reasonably required to support the payment for materials and labor, including payments to Subcontractors and Suppliers. The term "materials", as used herein, shall be considered to include those items which are fabricated and manufactured material and equipment. Only those materials for which the Contractor can transfer clear title to Sound Transit will be qualified for Partial Payment, except as specifically provided below.

- B. Partial Payment for Materials Purchased and Delivered but not Installed – To receive Partial Payment for materials purchased and delivered but not yet incorporated into the Work, the Contractor shall submit a list with certified invoices of such materials to Sound Transit for approval together with the Contractor's partial payment request. The required documents to support the Contractor's partial payment request for materials purchased and delivered but not installed will be determined by the storage location of the delivered materials: (1) materials delivered to and stored on the Site (aka Project Site) and (2) materials delivered to and stored in a location not on the Site.

1. For materials delivered to and stored on the site, the Contractor's claimed purchase price shall be supported by (i) certified invoices of Subcontractors or Suppliers (ii) together with proof of payment of such invoices (in the form of cancelled checks or acknowledgment by such Subcontractors or Suppliers of receipt of payment in full for such invoices).
2. For materials delivered to and stored in a location other than the site, For materials delivered to and stored in a location other than the Site, the Contractor's claimed purchase shall be supported by (i) certified invoices of Subcontractors or Suppliers (ii) together with proof of payment of such invoices (in the form of cancelled checks or acknowledgment by such Subcontractors or Suppliers of receipt of payment in full for such invoices), (iii) together with proof that the materials have been delivered to and accepted by the Contractor and are in its possession and control.

As a condition precedent to making Partial Payment for materials delivered and stored in a location other than the site, Sound Transit shall require that the Contractor, at its expense:

- a. Furnish Sound Transit with an irrevocable letter of credit with terms acceptable to Sound Transit or other security acceptable to Sound Transit. The issuer of the Letter of Credit, if provided, shall be a national bank acceptable to Sound Transit. The amount of the Letter of Credit shall be equal to the amount of the Partial Payment requested for the materials delivered to and stored in a location other than the Site. Sound Transit shall be entitled to draw on the Letter of Credit in one or more draws in any of the following circumstances: (a) the Contractor fails to deliver the materials to the Project Site when required; (b) the Contractor, Subcontractor, Supplier or Fabricator, at whose location the material is stored, becomes insolvent, or becomes the subject of a voluntary petition for relief in bankruptcy or other insolvency proceeding (or an involuntary



bankruptcy or insolvency proceeding is commenced against the Contractor and not dismissed within thirty (30) days; or (c) Sound Transit receives notice from the issuer that the Letter of Credit will not be automatically renewed or extended; or

- b. Subject to Sound Transit's consent, provide Sound Transit with a first and only priority perfected security interest ("Security Interest") in the materials covered by the payment request, pursuant to a written security agreement in form and substance acceptable to Sound Transit. Such security agreement shall be supported by Uniform Commercial Code ("UCC") financing statements describing the subject materials, UCC searches and other terms and conditions acceptable to Sound Transit in its discretion. Sound Transit may require the Contractor to physically segregate materials from other inventory of the Contractor. The Contractor shall plainly, distinctly, and conspicuously place or cause to be placed upon such other places as may reasonably be designated by Sound Transit from time to time a mark, label, or other identification bearing words that indicate Sound Transit's interest in the material.

Contractor's progress of Work shall not include materials delivered and not installed. Progress shall be determined solely on an estimate of the Work completed. Payment for materials purchased and delivered but not installed shall be at the sole discretion of Sound Transit.

- C. Partial Payment for Subcontracted Work - In its payment requests, the Contractor shall include payments for Subcontractors whose work was satisfactorily performed and part of the completed Work covered by the payment request. The Contractor shall not request payment from Sound Transit of amounts for Subcontractors until the Contractor has determined that the Subcontractors are entitled to the payment of such amounts for Work satisfactorily completed. Review of Payment Request - Within ten (10) days after receipt of the partial payment request and the required documentation, Sound Transit will review the request and either indicate approval in writing or indicate in writing to the Contractor specific reasons why part or all of the payment is being withheld and what remedial actions the Contractor must take to receive the withheld amount. Any amounts approved by Sound Transit for payment will, within thirty (30) days of acceptance of the Contractor's properly completed invoice or receipt of the goods or services, whichever is later, pay the Contractor a Partial Payment on the basis of the approved partial payment request. The payments will take into account the retention provisions provided for herein.
- D. In the event Sound Transit does not concur with the request, the Contractor may make the changes necessary to obtain Sound Transit's concurrence and resubmit the partial payment request. Sound Transit will, within thirty (30) days of acceptance of the Contractor's properly completed payment request, or receipt of the goods or services, whichever is later, and after the Contractor satisfactorily completes the remedial actions identified in Sound Transit's rejection of the payment request, pay the Contractor a partial payment on the basis of the approved partial payment request.
- E. The Contractor shall receive a payment from Sound Transit no more than once per calendar month unless otherwise approved by Sound Transit, at its sole discretion.
- F. Notwithstanding the payment provisions of this Contract, Sound Transit may make partial payment against any delivery or performance increment when Sound Transit deems such payment to be appropriate and in the best interest of Sound Transit to the extent of work has been satisfactorily completed.



- G. No approval for payment, nor any payment by Sound Transit, shall constitute an acceptance of Contract deliverables that are not in accordance with the Contract.

9.04 RETAINAGE

- A. Sound Transit will retain 5 percent of all Milestone or Partial Payments as a trust fund for the protection and payment of any person or persons, mechanic, Subcontractor, or material provider who performs labor upon the contract or Work hereunder, and all persons who shall supply such person or persons or Subcontractors with provisions and supplies for carrying on such Work. Such funds shall be deemed as public funds under RCW 39.58. In the event that during the performance of the Contract and prior to the expiration of the claim period the amount retained is reduced to an amount below 5 percent, then Sound Transit may retain additional sums from monies earned by the Contractor so as to maintain at all times a 5 percent retained trust fund, unless otherwise reduced or excused by Sound Transit.
- B. Monies reserved shall, at the option of the Contractor, be:
1. Retained in a fund by Sound Transit with no interest paid thereon to the Contractor, not subject to withdrawal until after Final System Acceptance of all Work, or a portion thereof, as may be approved by Sound Transit; or
 2. Deposited by Sound Transit in an interest-bearing account in a bank, mutual savings bank, or savings and loan association, not subject to withdrawal until after Final System Acceptance of all Work, or a portion thereof, as may be approved by Sound Transit; or
 3. Placed in escrow in a bank or trust company by Sound Transit. When the monies reserved are to be placed in escrow, Sound Transit will issue a check representing the sum of the monies reserved payable to the bank or trust company and the Contractor jointly. Such check shall be converted into bonds and securities chosen by the Contractor and approved by Sound Transit, and the bonds and securities held in escrow, not subject to withdrawal until after Final System Acceptance of all Work, or a portion thereof, as may be approved by Sound Transit.

Under options 2 and 3 above, interest will be paid to the Contractor as the interest accrues.

- C. The Contractor shall designate the option desired on a form as may be provided by Sound Transit. The Contractor in choosing option 2 or 3 agrees to assume full responsibility to pay all costs which may accrue from escrow services, brokerage charges, or both, and further agrees to assume all risks in connection with the investment of the retained monies.
- D. The Contractor may withhold payment of not more than 5 percent from the monies earned by any Subcontractor or Supplier contracted with by the Contractor to provide labor, materials, or equipment to the Project. The Contractor shall pay interest to the Subcontractors, and Suppliers. The Contractor shall inform Subcontractors and Suppliers of their right to receive these interest payments.
- E. Sound Transit makes no warranties as to the amount of interest to be paid on any investments. Upon final payment, the Contractor shall be entitled to all retention and accumulated interest, less monies due to Sound Transit.

9.05 RELEASE OF RETENTION

- A. The retention will be held and applied by Sound Transit as a trust fund. Except as provided in



Paragraph 9.05C below, payment or release of retention will be made in the ordinary course of business no earlier than forty-five (45) days following Final System Acceptance of the Work provided the following conditions are met:

1. If the Contract Price hereunder exceeds \$35,000, Certificates approved by the Washington State Department of Revenue, the Washington State Department of Labor and Industries, Washington State Employment Security Department, and other departments and agencies having jurisdiction over the activities of the Contractor have been provided to Sound Transit.
 2. "Affidavits of Wages Paid" for the Contractor and each Subcontractor approved by the Industrial Statistician of the Washington State Department of Labor and Industries have been provided to Sound Transit.
 3. No claims or notices of lien, as provided by law, have been filed against the retention and/or that any such asserted liens have been satisfied, discharged and extinguished as required by the Contract.
 4. Contractor signs and returns the Release of Retainage and Indemnity form for this Contract.
 5. Sound Transit has no outstanding claims under this Contract.
- B. If any taxes have not been discharged or any claims, expenses, and fees have not been paid, Sound Transit shall either retain in its fund, or in an interest bearing account, or retain in escrow, at the option of the Contractor, an amount equal to such unpaid taxes and unpaid claims together with a sum sufficient to defray the costs and attorney fees incurred in foreclosing the lien of such claims, and shall pay, or release from escrow, the remainder to the Contractor.
- C. If, under Article 9.07, the Contractor released and paid withheld monies to a Subcontractor, the following provisions shall apply.
1. Sound Transit may in its discretion, in furtherance of 49 CFR § 26.29 or otherwise, decline to withhold retainage from the Contractor and prohibit Contractor from withholding retainage from Subcontractors and/or require a contract clause obligating the Contractor to make prompt and full payment of any retainage paid by Sound Transit to Contractor to the Subcontractor within 30 days after the Subcontractor's work is Accepted. The Contractor may request release of a portion of the retainage withheld by Sound Transit equal to the amount the Contractor released and paid to the Subcontractor under Article 9.07. Sound Transit will release a portion of such retainage following submittal to the Regional Program Manager of the Subcontractor's Affidavit of Wages Paid approved by the Industrial Statistician of the Washington State Department of Labor and Industries, and submittal of a proper and complete Declaration of Completion of Subcontractor's Work and Release of Withheld Amount (including the acknowledgement by the Subcontractor of the declaration form, to be provided by Sound Transit).
 2. Upon receipt of a proper and complete Affidavit of Wages Paid and a Declaration of Completion of Subcontractor's Work and Release of Withheld Amount (Declaration), if applicable, the Regional Program Manager will review the affidavit and any accompanying documentation and may review the work completed by the Subcontractor identified on the Declaration. Review of the Subcontractor's work by Sound Transit shall not relieve the Contractor of its responsibility and liability to ensure all Work under the Contract is



performed in accordance with the requirements set forth in the Contract and will not commence warranties of Article 3.12, Warranty of Work.

3. If the Regional Program Manager does not concur with the assurances contained in the Declaration, the Regional Program Manager shall notify the Contractor in writing of that conclusion, provide the reasons for that conclusion and identify the remedial actions that the Contractor must take to gain the concurrence of the Regional Program Manager. Sound Transit shall not release any portion of the retainage withheld until the Regional Program Manager gives his or her concurrence with the assurances contained in the Declaration.
4. If the Regional Program Manager concurs with the assurance contained in the Declaration, the Regional Program Manager shall notify the Contractor in writing of that conclusion and prepare and submit documentation for Sound Transit to release the applicable portion of the retainage withheld. Sound Transit will release such portion of the retainage within thirty (30) days from the date of the written notice from the Regional Program Manager to the Contractor.
5. Release to the Contractor of any portion of the retainage withheld by Sound Transit shall not relieve the Contractor of its responsibilities and liabilities for liens and claims duly filed and prosecuted under applicable Washington State law. In consideration of Sound Transit releasing any portion of the retainage withheld by Sound Transit on account of satisfactory completion of work by one or more Subcontractors, the Contractor shall defend, indemnify and hold harmless Sound Transit from all responsibilities and liabilities related to such liens and claims. The Contractor acknowledges that failure to make timely payment to the Subcontractor may result in sanctions pursuant to Sound Transit's Diversity Program Provisions, and other legal consequences.

9.06 WITHHOLDING PAYMENTS

- A. The Contractor shall only be paid monies earned by fulfilling its responsibilities under this Contract less the 5 percent retention. Monies shall not be considered earned if any of the following conditions applies:
 1. The Work for which the Contractor is claiming payment was not performed in accordance with the Contract;
 2. The Contractor's pay request does not contain all the required documentation or is otherwise not in conformance with the requirements of this Contract;
 3. There is a good faith dispute over all or a portion of the amount due, as detailed in Article 9.07;
 4. Failure of the Contractor to make payments owed to Subcontractors, or for labor, materials, or equipment;
 5. Failure of Contractor to submit Project Schedule, or updated Project Schedules that are acceptable to Sound Transit and timely in accordance with the Contract;
 6. Failure to maintain progress of the Work in accordance with the accepted Project Schedule unless such failure is caused by Sound Transit or by Unavoidable Delays, or failure to take necessary steps to regain time or deliver the Work in the prescribed Contract Time;



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7. Failure to comply with Contract safety requirements;
 8. Imposition of any liquidated damages under the Contract;
 9. Defective or Non-Conforming Work;
 10. Failure to comply with Governmental Requirements; and/or
 11. Third party claims filed or reasonable evidence that third party claims will be filed.
- B. In the event Sound Transit withholds all or a part of a payment for deficiencies in either performance, or in a payment request, Sound Transit will notify the Contractor in accordance with RCW 39.76. The Contractor shall have the right to correct all deficiencies that are the basis for the withholding and resubmit the pay request at any time for reconsideration.
- C. In the event Sound Transit withholds all or part of a payment because of a dispute, the Contractor may receive the payment by resolving the dispute, or by agreeing to accept the payment tendered by Sound Transit as full and final resolution as between Sound Transit and the Contractor to all claims arising from the dispute.

9.07 PROMPT PAYMENT TO SUPPLIERS AND RELEASE OF AMOUNTS WITHHELD FROM SUBCONTRACTORS

- A. When the Contractor receives a payment under this Contract, the Contractor shall comply with the following provisions:
1. The Contractor shall pay to each Subcontractor not later than five (5) business days after the receipt of the payment, amounts paid to the Contractor on account of the work performed by the Subcontractor.
 - a. In the event of a good faith dispute over all or any portion of the amount due on a payment from Sound Transit to the Contractor, or from the Contractor or subcontractor to a subcontractor, Sound Transit, or the Contractor or subcontractor, may withhold no more than one hundred fifty percent of the disputed amount. Those not a party to a dispute are entitled to full and prompt payment,
 2. If the Contractor fails or neglects to make such payment within five (5) business days, the Contractor shall pay to the Subcontractor interest computed at one percent per month on amounts due for the period beginning on the day after the required payment date and ending on the day on which payment of the amount due is made.
 3. The Contractor shall include in each of its Subcontracts a provision setting forth the payment and interest penalty clause set forth in this Article 9.07. In addition, the Contractor shall require its Subcontractors to include such a payment and interest clause in each of their Subcontracts and to require each of their Subcontractors to include such clauses in their Subcontracts with each lower tier Subcontractor or Supplier. The time limit for payment under all Subcontracts below the first tier shall be five (5) business days.
- B. The payment and interest clauses in this Article 9.07 shall not be construed to impair the right of the Contractor or a Subcontractor at any tier to negotiate and include in their Subcontracts provisions related to retention of a specified percentage or withholding of part or all of Partial Payments without incurring any obligation to pay a late payment interest penalty thereon in accordance with the Subcontract agreement. If the Contractor withholds any portion of payments



to a Subcontractor during performance of the Subcontractor's work, whether under Washington State law or otherwise, the Contractor shall comply with the provisions in this Paragraph 9.07B to release such withheld monies following satisfactory completion of the Subcontractor's work.

1. The Contractor shall monitor the work of each Subcontractor to ensure such work is consistent with the terms of the subcontract between the Contractor and Subcontractor.
2. The Contractor shall determine that a Subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required in the subcontract and the Contract between Sound Transit and the Contractor. Upon making such determination, the Contractor shall provide a written notice of such determination to the Subcontractor and submit a copy of the notice to the Regional Program Manager.
3. As required by 49 CFR § 26.29, Contractor shall implement regular and incremental acceptances of portions of the Work as completed by Subcontractors covered by said regulation and shall, within thirty (30) days from and after the date of its determination that a Subcontractor's work is satisfactorily completed in whole or part, the Contractor shall release and make full payment of all monies withheld from Partial Payments to the Subcontractor during performance of all or any incremental part of the Subcontractors work.

9.08 FINAL PAYMENT

- A. Sound Transit will make Final Payment, excluding held retention, to the Contractor following Final System Acceptance of Work, and submittal of a final Affidavit of Amounts Paid to all businesses participating under the Contract. Final Payment shall include the entire sum found to be due hereunder after deducting therefrom such amounts as the terms of this Contract permit. Prior estimates and payments, including those relating to extra work or work omitted, shall be subject to correction by the Final Payment. Final Payment will be made only for materials actually incorporated in the Work; and, all materials remaining for which Partial Payments have been made shall revert to the Contractor, unless otherwise agreed, and Partial Payments made for these items shall be deducted from the Final Payment for the Work.
- B. By accepting Final Payment, the Contractor shall be deemed thereby to have released Sound Transit from all claims of Contractor, except those pending under Article 11.06 hereunder, and all liability to the Contractor for things done or furnished in connection with the Work and for every act and neglect of Sound Transit and others relating to or arising out of the Work. Payment by Sound Transit shall not release the Contractor or its surety from any obligation under the Contract or under the Performance and Payment Bonds, which obligations shall continue through the Contract Warranty period.

9.09 PAYMENT ON TIME AND MATERIAL BASIS

- A. Direct Labor
 1. For all labor, foreman and below, engaged in the extra work subject to this Article, the Contractor shall receive:
 - a. The applicable wage and fringe benefits on the Contract for each hour that labor is actually engaged in changed work.
 - b. The cost of the payroll taxes and unemployment compensation premiums.



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- c. The cost of any health, welfare, pension, or collective bargaining agreement benefits paid, including Worker's Compensation.

2. No overtime will be allowed, unless written authorization has been given by Sound Transit.

B. Materials

For all materials and prices approved by Sound Transit used in the extra work subject to this Article, the Contractor shall receive the cost of material, including freight charges and Washington State Sales Tax (if applicable), as shown by the receipted bills for materials and freight.

C. Equipment

1. For all work and automotive equipment required in the performance of the extra work subject to this Article, payment for the use and operation of equipment (owned, leased or rented on a monthly basis by the Contractor) shall be made by Sound Transit under the provisions of this Article. Such charge shall not include any item of equipment or tool with a new cost of less than \$500.

2. For Work being performed pursuant to these time and material provisions, reimbursement shall fall into one of two types of equipment ownership (Owned or Rental) and two categories of usage: operated equipment, and standby equipment.

a. Owned Equipment is defined to include that equipment, owned by or under a lease/purchase or lease/option to purchase agreement with the Contractor, a constituent member of the Contractor, or an entity owned and/or controlled by the Contractor or one of its constituent members.

b. Rented Equipment is defined to include equipment that is on a short-term rental, long term rental, or lease. Equipment that is on a lease/purchase or lease/option to purchase agreement will be considered as Owned Equipment. If Owned Equipment is not available and Rented Equipment necessary to perform the changed Work is obtained from an outside source, payment for the "ownership" aspect of the cost will be made as stipulated below. In addition, if the rental rate does not include an "operation" component, the Contractor shall be reimbursed for the estimated hourly operating costs as provided below. The Contractor shall be responsible for monitoring the use of such rental equipment to obtain the overall best rates for its utilization. The Contractor shall use its best efforts to minimize the overall cost of such rentals to Sound Transit.

c. Tunnel Equipment is defined to include the Tunnel-Boring Machines and accessories; tunnel and shaft backup equipment; conveyors (horizontal, vertical, or inclined, either in the tunnel, in the shaft, or on the surface), hoppers or bins; locomotives; all rolling stock; air compressors; shotcrete and grouting equipment; concrete equipment; pumps: water, dewatering, etc.; batch facilities: shotcrete, concrete, grout, etc.; concrete form, travelers, work jumbos; hoists, man or equipment; discharge water treatment facilities and linear facilities; all track and necessary accessories; switches; car dumpers; pipes with valves, couplings, etc.; ventilation line (soft or hard) and fans; electrical (transformers, switch gear, substations, power cable, light lines, etc.); communications equipment and lines; and other fixed or mobile facilities and equipment associated with the tunneling operations.



3. Cost Computations for Owned Equipment:

- a. The basis for cost computations for operated Owned Equipment in the performance of the extra work subject to this Article, shall be as stated in the Cost Reference Guide for Construction Equipment (CRG) by Primedia Information, Inc. or its successor. The CRG version that shall be used will be that which is in effect at the time of performance of the Work. The equipment costs shall be calculated as follows:
 - 1) Charges to Sound Transit for the "ownership" component of the equipment shall be computed and charged to yield the hourly rate based on the sum of depreciation, cost of facilities capital, and overhead components of the CRG for said equipment.
 - 2) After eight (8) hours of equipment use in a twenty-four (24) hour period, and after forty (40) hours of equipment use in a week, the equipment "ownership" rate shall be 50 percent of the rate established in Sub-paragraph (1) above.
 - 3) The costs of fuel, lubricants, tires and other expendables, repairs, parts, service, maintenance, and overhaul (the operating cost) shall be charged at the sum of the Total Operating Cost/Hour plus the Overhaul Costs/Hour (which shall collectively be referred to hereafter as the "Operating Cost/Hour") set forth in the CRG. This rate shall be paid only for hours that the equipment is operated in performance of the changed Work that is subject to these time-and-materials provisions. If the item of equipment is electrically powered with the electricity being supplied by a public utility and if the CRG does not have an electrical fuel cost per hour component in the Operating Cost/Hour, the cost of electricity to operate the equipment will be calculated and submitted to Sound Transit for approval. The approved rate shall be added to and become a part of the "Operating Cost/Hour."
 - 4) The application of any adjustment factors is hereby excluded.
 - 5) Normal working conditions will be assumed and used as the basis for the rate calculation.
 - 6) Equipment Operators will be paid for as direct labor under Paragraph 9.09A, Direct Labor, above and are not part of the calculated rate for equipment. Compensation for equipment mechanics, oilers (not assigned to a specific item of equipment on a full time basis), and other indirect support (labor or equipment) for the equipment fleet is included within the equipment rates otherwise established herein.
 - 7) Transportation costs to and from the work Site for equipment mobilized to the Site specifically to perform the changed Work, if approved in advance by Sound Transit, will be paid as an item to be billed to Sound Transit. This cost will be treated as a Service when performing the markup calculations. No separate payment for transportation costs will be made if the equipment is brought to the Site for other than changed Work.



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- 8) If a rate is not provided in the CRG, and the Contractor and Sound Transit cannot otherwise arrive at a mutually agreeable rate for its use, the Contractor shall furnish appropriate equipment and cost information to Sound Transit. Sound Transit will calculate an appropriate rate following the principles established in the CRG.
 - 9) If practicable under the circumstances, all equipment rates shall be established in writing before commencing any changed Work. If it is necessary to employ such equipment in performance of the changed Work before it is practicable to provide rates to Sound Transit, the Contractor shall provide rates at the earliest opportunity available to it without hindering the prosecution of the Work.
- b. For Owned Equipment on standby in the performance of the extra work subject to this Article, if approved by Sound Transit, the standby rate will be only the ownership portion of the applicable rate. The total standby cost per day will be based on the number of hours that the equipment is on standby in the performance of the changed Work. The standby hours will be calculated as follows:
- 1) The total standby hours per day will be a maximum of eight (8) hours less the operating hours paid as a result of the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.
 - 2) The total standby hours per week will be a maximum of forty (40) less the operating hours paid for the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.
4. Cost Computation for Rental Equipment
- 1) For Rented Equipment that is operated in the performance of the extra work subject to this Article, the cost shall be calculated as follows: The ownership rate per hour shall be calculated by dividing the invoiced amount by the normal hours covered by the invoice. If the normal rental period would be by the month, then Sound Transit shall not approve rental invoices submitted on a weekly, daily or hourly rate basis or allow ownership rates to be calculated on any rate other than a monthly rate. The same logic shall apply for a normal rental period of a week or a day.
 - 2) If the invoice is based on a single shift of operation, then after eight (8) hours of equipment use in a twenty four (24) hour period, and after forty (40) hours of equipment use in a week, the equipment "ownership" rate shall be 50 percent of the rate established in Sub- paragraph (1) above.
 - 3) The costs of fuel, lubricants, tires and other expendables, repairs, parts, service, and maintenance (the "operating" cost) shall be charged at the Total Operating Cost/Hour set forth in the CRG unless the rental invoice



is for equipment which is "operated and maintained", in which case there will be no additional payment for operating costs. This rate shall be paid only for hours that the equipment is operated in performance of the changed Work that is subject to these time-and-materials provisions. If the item of equipment is electrically powered with the electricity being supplied by a public utility, the cost of electricity to operate the equipment will be calculated and submitted to Sound Transit for approval. The approved electrical cost per hour shall be added to and become a part of the "Total Operating Cost/Hour."

- 4) The application of any adjustment factors is hereby excluded.
 - 5) Normal working conditions will be assumed and used as the basis for the rate calculation.
 - 6) Equipment Operators will be paid for as direct labor under Paragraph 9.09A, Direct Labor, and are not part of the rate calculated for rented equipment unless the rental invoice is for equipment which is "operated and maintained", in which case there will be no additional payment for equipment operators and/or oilers. Compensation for equipment mechanics, oilers (not assigned to a specific item of equipment on a full time basis), and other indirect support (labor or equipment) for the equipment fleet is included within the equipment rates otherwise established herein.
 - 7) Transportation costs to and from the work Site for equipment mobilized to the Site specifically to perform the changed Work, if approved in advance by Sound Transit, will be paid as a discrete item to be billed to Sound Transit. This cost will be treated as a Service when performing the markup calculations. No separate payment for transportation costs will be made if the equipment is brought to the Site for changed Work and is also used on Contract Work items.
 - 8) If a rate is not provided in the CRG and the Contractor and Sound Transit cannot otherwise arrive at a mutually agreeable rate for its use, the Contractor shall furnish appropriate cost information to Sound Transit. Sound Transit will calculate an appropriate rate following the principles established in the CRG.
 - 9) If practicable under the circumstances, all equipment rates shall be established in writing before commencing any changed Work. If it is necessary to employ such equipment in performance of the changed Work before it is practicable to provide rates to Sound Transit, the Contractor shall provide rates at the earliest opportunity available to it without hindering the prosecution of the Work.
- b. For Rented Equipment on standby in the performance of the extra work subject to this Article, if approved by Sound Transit, the rate per hour to be paid will be only the ownership portion of the applicable rental rate as calculated above. The total standby cost per day will be based on the number of hours that the equipment is on standby in the performance of the changed Work. The standby



hours will be calculated as follows:

- 1) The total standby hours per day will be a maximum of eight (8) hours less the operating hours paid as a result of the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.
- 2) The total standby hours per week will be a maximum of forty (40) hours less the operating hours paid for the changed Work and less the hours that the item of equipment was or could have been used on other changed or non-changed Work and less any hours that the equipment was in a "non-operational" condition, as determined and approved by Sound Transit.

D. Markups-Percentage Allowances

The Contractor will be permitted to apply overhead and profit markups, not exceeding the percentage stated herein, to its increased cost resulting from any change in the Work ordered by Sound Transit for which payment is to be made under the time-and-material provisions of this Contract. These overhead and profit markups are maximum allowable percentages subject to reduction by audit.

Markup allowable at the tier for the entity performing the extra work with its own forces, whether the Contractor or a Subcontractor at any tier, shall not exceed 15% of total direct costs of the changed Work. The Contractor's markup allowable to cover the overhead and profit for Work performed by a Subcontractor shall not exceed 6% of the Subcontractor's cost. In no event shall the combined overhead and profit markup paid to Contractor and first tier Subcontractors exceed 21%, unless the work is performed by Subcontractors at the second-tier or lower, in which case an additional 6% markup is allowed at each tier. The markup allowance made shall constitute compensation for all management and supervision above the foreman level, engineering and surveying, safety, administration; use of equipment and tools costing \$500 or less; all administrative and overhead expense; insurance premiums not paid herein; profit; other indirect expense; losses of all kinds; home office overhead expense; and all other items of cost not specifically designated herein as items for which specific payment is to be made. No other reimbursement, compensation, or payment will be made for any such services, costs, or other items.

E. Time and Material Records and Invoices

1. All charges related to Time and Material Work authorized by the Regional Program Manager shall be tracked on a daily basis. The Contractor shall complete a comprehensive Time and Material work report form, furnished by Sound Transit or alternate approved by Sound Transit, which details all the labor, services, material and equipment utilized in the course of completing the Time and Material Work. The report shall itemize the materials used, and shall cover the direct cost of labor and materials, and the charges for equipment rental and operation, whether furnished by the Contractor, Subcontractor or other force. The daily report sheets shall provide names or identifications and classifications of workers, the hourly rate of pay and hours worked; quantity, type and cost of materials used; and also the size, type, and identification number of equipment; the hours



operated, and the hours of Sound Transit authorized standby.

2. All charges related to Time and Material Work shall be verified in the field by Sound Transit at the end of each Work shift. The Contractor shall complete a field report at the end of each shift that itemizes and summarizes all the charges. The report shall be signed by the Contractor's Representative and, upon verification by Sound Transit, copies of the signed report shall be provided immediately to Sound Transit's representative. The signature of Sound Transit's Inspector shall not be construed as acceptance of the Work or approval of the value invoiced by the Contractor. The Regional Program Manager shall have the authority to review the charges related to Time and Material Work for reasonableness and efficiency, and to determine if the work for which the Time and Material reports have been submitted is in fact extra work. In the event that certain charges are deemed unreasonable or unnecessary for the Time and Material Work being performed by the Contractor, the Regional Program Manager shall direct the Contractor to delete such charges from the Time and Material Work Records. Evidence of Sound Transit's verification of all field reports shall be submitted by the Contractor with its draft invoice.
3. Invoices for Time and Material Work shall show, in payroll form, the dates, names, hours worked each day, rates of pay, and amounts paid for each individual employed on such Work and shall give in detail the nature of the Work performed by each employee.
4. Invoices for materials and services shall be fully itemized showing dates of delivery, quantities, unit prices, amounts, and discounts, and shall be accompanied by photocopies of vendor invoices covering each item. Such invoices shall be submitted with the daily report sheets. If invoices are not available, they shall be submitted with subsequent daily report sheets; however, except as provided by law, no payment shall be made for material charges until valid copies of vendor's invoices are submitted. Should said vendor's invoices not be submitted within sixty (60) days after the date of delivery of the material or fifteen (15) days after completion and acceptance of the Work, whichever comes first, the Regional Program Manager reserves the right to establish the cost of such materials at the lowest current wholesale prices at which such materials are available in the quantities concerned delivered to the location of the Work, less any discounts provided in these General Conditions.
5. Invoices for Owned or Rented Equipment charges shall be fully itemized showing a complete description including size and capacity of equipment, number of hours operated and/or number of hours at Sound Transit ordered standby for each day, the hourly rates being charged to Sound Transit for both ownership and operating elements, and the total amount charged, for each individual piece of equipment used. If rates were not pre-approved by Sound Transit as specified herein, the Contractor shall also include the rate computation and appropriate back-up materials as described herein.
6. Invoices for Time and Material Work shall be prepared and submitted in accordance with the payment procedures outlined in this Contract. All invoices, payrolls, and other documents which support the invoice for the Time and Material work shall be submitted with the partial payment request, shall state the Contract number, and Contract Item under which the Work was performed.
7. Failure to present complete Time and Material records and invoicing in proper form after the close of the month in which the time and materials Work was performed shall constitute a waiver by the Contractor of its right to present such a billing or invoice



thereafter or to receive payment therefore, unless the Contractor promptly corrects and resubmits the Time and Material Records and Sound Transit approves the re-submittal.

- F. The Regional Program Manager will compare the Regional Program Manager's records with the daily report sheets furnished by the Contractor, make any necessary adjustment, and adjust the costs of work paid for on a Time and Material basis on the Time and Material Work forms. When these daily reports are agreed upon and signed by both parties, they shall become the basis of payment for the work performed, but shall not preclude subsequent adjustment based on a later audit.
- G. Payment as provided in this Article shall constitute full compensation to the Contractor for performance of work paid for on a Time and Material basis and no additional compensation will be allowed therefore.
- H. The Contractor shall maintain its records in such a manner as to provide a clear distinction between the direct costs of Work paid for or required to be paid for on a Time and Material basis and the costs of other operations.

9.10 PROVISIONAL SUM WORK

- A. No Provisional Sum Work will be performed, or paid for, without prior issuance of a Provisional Sum Authorization (PSA).
- B. Sound Transit may, without request from the Contractor, issue a PSA for work to be performed under a Provisional Sum Contract Pay Item.
- C. If the Contractor believes that a PSA is required, the Contractor shall notify Sound Transit. Sound Transit will:
 - 1. Issue a PSA; or
 - 2. Request additional information; or
 - 3. Make a written determination that the event or condition does not justify a PSA.
- D. The Contractor shall maintain records and invoices for all costs associated with the Provisional Sum Work in accordance with the requirements specified in Section 9.09 Payment on Time and Material Basis.
- E. Any potential time impacts arising from Provisional Sum Work shall be resolved in accordance with Article 4, Changes and Change Order Process, and Article 10, Delays and Claims.

ARTICLE 10 DELAYS AND CLAIMS

10.01 CLAIMS

- A. Notice of Intent to Claim
 - 1. In order to receive any recovery or relief in connection with the Contract, the Contractor must submit a written Notice of Intent to Claim to Sound Transit through the Regional Program Manager in accordance with the provisions of this Article. Written Notice as provided herein shall be a condition precedent to the Contractor's right to recover on a claim, and failure to comply with these requirements shall constitute a waiver by the Contractor on any right, equitable or otherwise, to bring any such claim against Sound



Transit.

2. The written Notice of Intent to Claim shall set forth:
 - a. Detailed description of the facts and/or conditions giving rise to the Contractor's demand for additional compensation ;
 - b. nature of the costs involved;
 - c. the Contractor's plan for mitigating such costs; and
 - d. the Contractor's best estimate of the amount of the potential claim, and
 - e. the Contractor's best estimate of Critical Path(s) impacts.
3. The Notice shall be submitted within ten (10) days after Contractor discovers or should have discovered, whichever comes first, the event or occurrence giving rise to the potential claim, or the denial of a Request for Change or the issuance of a Unilateral Change Order by Sound Transit. However, if the event or occurrence is claimed to be an act or omission of Sound Transit, a Notice of Intent to Claim shall be given by the Contractor within ten (10) days after the Contractor discovers or should have discovered, whichever comes first, the act or omission and prior to the time for performance of that portion of the Work to which such alleged act or omission relates.
4. The notice requirements of this Article are in addition to any other notice requirements set forth in the Contract.

B. Claims

1. General
 - a. The Contractor shall file all claims within sixty (60) days of the submission of the Notice of Intent to Claim, with a reasonably detailed factual statement of the Claim providing at minimum (i) all necessary details, locations and items of Work affected, (ii) the specific causes(s) of the Claim or alleged damages sustained, (iii) an explanation as to how Contractor attempted to mitigate its damages for the Claim, (iv) copies of documents Contractor believes support the Claim, (v) all cost records meeting the requirements of Article 3.03, and (vi) if the claim seeks an extension of the Contract Time, the specific days and dates sought and Contractor's analysis of the Contract Schedule demonstrating entitlement to the time extension. When requested by Sound Transit, the Contractor shall submit such further information and details as may be required to determine the facts and contentions involved in said claim. The Contractor shall give Sound Transit access to its books, records, and other materials relating to the claim, and shall cause its Subcontractors to do the same, so that Sound Transit can investigate said claim(s). The Contractor shall provide Sound Transit, on request, with electronic copies of any and all portions of such books, records, and other material determined to be pertinent to the claim.
 - b. Failure to submit the detailed factual statement described above may result in rejection of the Claim.
 - c. Each claim the Contractor submits for an adjustment that is related to a delay for any cause shall be accompanied by:



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- 1) a revised project schedule reflecting the effects of the delay; and
 - 2) proposals to minimize these effects.
- d. If the Contractor fails to submit any Claim in writing in the time and manner specified herein, it shall waive any relief that might otherwise be due with respect to such claim. Depending upon the grounds for the relief and the nature of the relief sought, additional information and/or conditions of submittal may be specified elsewhere in this Contract.
 - e. At all times during the course of claim evaluation or dispute resolution, the Contractor agrees to continue to perform the Work with due diligence and in accordance with the Contract, unless a Stop Work Order has been issued by Sound Transit. In the event the disputed matter impedes continuing performance, the Contractor shall inform Sound Transit in writing of the impediment and seek direction as to how to proceed. If the Contractor fails to provide such notice to Sound Transit, it shall be assumed that the Contractor is proceeding with performance of the Contract.
 - f. Compliance with the cost record requirements related to the Claim is a condition precedent to making of any Claim for recovery of any costs or damages related to or arising from performance of the Contract or the Work. In the event Contractor or any Subcontractor or Supplier seeks to make a Claim without complying with such requirements (inclusive of Article 3.03), such Claim is deemed waived and no adjustment shall be made to the Contract Price or Contract Time with respect to such Claim.
 - g. Both parties have a duty to take all reasonable steps necessary to mitigate losses resulting from the dispute whether those losses are their own or another party's losses.
 - h. All claims filed by Contractor shall be verified under penalty of perjury by an officer or principal authorized to act for Contractor or in the case of a counterclaim for Sound Transit (or, in the case of claims made by or for the benefit of any Subcontractors, by an authorized officer or principal of both Contractor and Subcontractor) containing a sworn certification that the Claim is made in good faith after the exercise of reasonable diligence and investigation, that the supporting cost and pricing data are true and accurate based upon reasonable investigation, that the Claim is fully supported by accompanying data and accurately reflects the adjustment in the Contract Price and/or Contract Time for which Contractor believes Sound Transit is liable, and that in the event the Claim proceeds to alternate dispute resolution or litigation that the Claim amount will not exceed the amount set forth in the Claim. Nothing in this paragraph shall preclude the award of costs, expenses, or attorneys' fees as a result of alternate dispute resolution and/or litigation.
2. Claims Processing
- a. The Contractor shall submit its claim in writing to the Regional Program Manager for evaluation and resolution. Sound Transit shall respond within sixty (60) days after receipt of the claim. Either party may request in writing, within thirty (30) days of receipt of the claim, that the other party provide any additional



documentation that may be required to support the Contractor's claim or documentation that may relate to defenses or claims Sound Transit may have against the Contractor. Sound Transit shall respond in writing to the Contractor's claim including any additional documentation as requested by Sound Transit, within either thirty (30) days of receipt of said additional documentation, if the Contractor responds during the initial sixty (60) day period, or within a period no longer than that taken by the Contractor in producing the additional documentation, whichever is greater. In no event shall the extension of the response time resulting from Sound Transit's request for additional documentation and the Contractor's response time be deemed to waive any statutory limits or rights to Sound Transit.

- b. The Regional Program Manager shall issue a written decision, with reasons, regarding the claim and deliver such decision promptly to Contractor in accordance with subsection 2.a. above. If the claim is found to have merit by the Regional Program Manager, the settlement will be negotiated in compliance with Article 4, Changes and Change Order Process.

3. Claims Two Hundred Fifty-Thousand Dollars (\$250,000) and Less.

If Sound Transit finds the claim not to have merit, the Contractor may, within ten (10) calendar days of receipt of the finding, submit written appeal to the ORCA Director or equivalent. The finding on the appeal will be provided in writing within sixty (60) calendar days unless a longer review period is deemed necessary, in which case the Contractor will be notified of the response period within the initial 60 days after the appeal.

If the ORCA Director or equivalent finds the appeal not to have merit the Contractor may, within ten (10) calendar days of receipt of the finding, submit the claim for dispute resolution in accordance with Article 11, Dispute Resolution.

4. Claims Over Two Hundred Fifty-Thousand Dollars (\$250,000)

If Sound Transit finds the claim not to have merit the Contractor may, within ten (10) calendar days of receipt of the finding, submit the claim for dispute resolution in accordance with Article 11, Dispute Resolution.

- 5. If the Dispute Resolution process finds the claim to have merit and if both parties accept the finding, Sound Transit and the Contractor will negotiate the terms and value of a bilateral Change Order in accordance with Article 4, Changes and Change Order Process. In no event shall any claims be made, except for claims for Work conducted after Final System Acceptance, after Final System Acceptance is issued. Failure by the Contractor to submit claims in a timely manner shall result in a waiver by the Contractor as to such claims.

- 6. Failure to comply strictly with the notice and other procedures set forth in the Contract Documents shall bar the Contractor from asserting any claim or right to compensation, damages, schedule extension, or any other relief.



10.02 DELAYS

A. Liquidated Damages

The provisions herein shall apply to all claims by Sound Transit for liquidated damages pursuant to this Contract:

1. For each and every day that Contractor fails to achieve a designated Contract Milestone, as specified in Section 04 Liquidated Damages, damage will be sustained by Sound Transit. These damages may include, but are not necessarily limited to the following:
 - a. Delays in completion and operation of the system;
 - b. Increased costs of Contract administration, inspection, and other ORCA agency functions related to the design and execution of the Project;
 - c. Costs resulting from delays to interfacing Contractors;
2. Because of the difficulty in computing the actual material loss and damages to Sound Transit, it is determined in advance and agreed by the parties hereto that the Contractor will pay Sound Transit the amount(s) set forth in Section 04 Liquidated Damages Amounts for each day of delay as representing a reasonable amount of the actual damages that Sound Transit will suffer by the failure of the Contractor to complete such Work, or portion thereof, within said time(s). The execution of this Contract shall constitute acknowledgement by the Contractor that it has ascertained and agreed that Sound Transit will actually suffer damages in the amount herein fixed for each and every day during which the completion of the Work or portions thereof is avoidably delayed beyond the specified time(s).
3. Sound Transit may deduct assessed liquidated damages from any monies due or that may become due to the Contractor under the Contract. If such deducted monies are insufficient to recover the liquidated damages owing, the Contractor or the Contractor's surety or sureties shall pay to Sound Transit any deficiency within thirty (30) days after completion of the Work.
4. Where liquidated damages for contractor-caused delays are applicable, Sound Transit shall not seek additional damages for delay regardless of how denominated; however, to the extent liquidated damages are not applicable, Sound Transit reserves all other rights and remedies provided by law or under this Contract.
5. For the avoidance of doubt, if multiple liquidated damages apply throughout this Contract, then Sound Transit will be entitled to receive, up to the capped amount below, the sum of all liquidated damages that apply.
6. The sum of all liquidated damages in this Contract, wherever appearing, is capped at \$11M.

B. Extension of Time for Certain Delays

1. Notice of Delay or Potential Delay. Immediately, but in any event no more than five (5) days, after the Contractor foresees or should foresee a delay or a potential delay in the prosecution of the Work or upon the occurrence of a delay or potential delay that the Contractor regards as Unavoidable or compensable, the Contractor shall provide notice to Sound Transit of such delay or potential delay. Within five (5) days of such notice the Contractor shall provide in writing the extent of the delay, the specific impacts and effects



of the delay on critical path activities and the Project Schedule, and its cause. The notice requirement in this Paragraph 10.02B.1 is in addition to notice required by other parts of this Contract, inclusive of Article 4.02. At a minimum the written notice under this Paragraph shall include:

- a. The facts underlying the potential delay;
 - b. The nature of any additional costs which may be caused by the potential delay;
 - c. The nature of any additional time which may be needed;
 - d. The Contractor's plan for mitigating such costs and delay; and
 - e. An estimate of the cost impacts due to the delay or the potential delay and an estimate of the time extension required for mitigation, along with all substantiating facts and supporting data.
2. The Contractor shall take immediate steps to prevent, if possible, the occurrence or continuance of the delay. If this cannot be done, the Contractor and Sound Transit will determine how long the delay will continue and to what extent the prosecution and completion of the Work are being or will be delayed thereby. Sound Transit will also determine whether the delay is to be considered Avoidable or Unavoidable and notify the Contractor of Sound Transit's determination.
 3. Compliance with the notice requirements of this Article shall be a condition precedent to the Contractor's claim for delay. The Contractor agrees that no claim shall be made for delays for which timely written notice, as specified above, is not made to Sound Transit.

C. Avoidable Delays

1. Avoidable Delays in the prosecution of the Work shall include delays to the critical path of the Work that could have been avoided by the exercise of due care, prudence, coordination, foresight and diligence on the part of the Contractor, its Subcontractors, or its Suppliers at any tier. Examples of Avoidable Delays include, but are not limited to:
 - a. Delays that may in themselves be unavoidable but do not necessarily prevent or delay the prosecution of parts of the Work or the completion of the Work within the Contract Time (e.g., fit within the Float time shown on the Project Schedule(s).)
 - b. Time associated with the reasonable activities of Sound Transit, third party stakeholders or other contractors employed by Sound Transit that do not necessarily prevent the completion of the Contract within the Contract Time.
 - c. Individualized labor actions or strikes within Contractor's control, normal weather conditions, mechanical breakdown, equipment failure, and acts of negligence by the Contractor's forces, including Subcontractors and Suppliers.
 - d. Delays in the prosecution of the Work due to:
 - 1) The Contractor's failure to provide sufficient resources, including, but not limited to: personnel, equipment, material, or facilities;
 - 2) The Contractor's failure to submit required work products in a timely



manner;

- 3) The Contractor's failure to procure and/or deliver materials and/or equipment in a timely manner.
2. Contractor shall not be entitled to any time extension or additional compensation for any Avoidable Delay. However, Sound Transit may in its sole discretion grant an extension of time for Avoidable Delay, if Sound Transit determines that an extension is in Sound Transit's best interest. Any such discretionary time extension shall be issued through a Change Order.

D. Unavoidable Delay

1. An Unavoidable Delay means a delay to the critical path of the prosecution of the Work that results from causes beyond the control of the Contractor and that could not have been avoided by the exercise of care, prudence, coordination, foresight, and diligence on the part of the Contractor, its Subcontractors or its Suppliers at any tier, and for which no provision is specifically provided in the Contract Documents for managing or mitigating such delay.
2. Examples of Unavoidable Delays include, but are not limited to:
 - a. Acts of God.
 - b. Fire or other casualty for which Contractor is not responsible.
 - c. War.
 - d. Riot.
 - e. Unusually Severe Weather. Unusually severe weather conditions shall not be deemed unusually severe if they fall within two (2) standard deviations from the mean of data recorded by the U.S. Weather bureau for the Seattle and Tacoma metropolitan area over the past twenty (20) years. Impacts of on-going weather conditions shall be updated weekly by the Contractor and provided to Sound Transit. To preclude the difficulties of actual measurement the parties hereto agree that weather data at the Site shall be expressly deemed to be the same as that measured at the Seattle-Tacoma International Airport by the Environmental Data and Information Service of the National Oceanic and Atmospheric Administration ("NOAA") of the U.S. Department of Commerce.
 - f. Epidemic.
 - g. Earthquake.
 - h. Terrorism.
 - i. General industry strikes or labor disputes beyond the reasonable control of the Contractor.
3. Extension of Time - For delays that the Contractor has given notice as required by the Contract, and considers to be Unavoidable Delay, the Contractor shall submit to Sound Transit complete written information demonstrating the effect of the delay on the critical path on the accepted Project Schedule. The submission shall be made within ten (10) days after the end of the occurrence that is claimed to be responsible for the



Unavoidable Delay. Sound Transit will review the Contractor's submission and determine the number of days of Unavoidable Delay and the effect of such Unavoidable Delay on such critical path. Sound Transit may grant an extension of time to the extent that Unavoidable Delays necessarily affect the critical path(s) in the Project Schedule. During such extension of time, liquidated damages will not be charged to the Contractor. It is understood and agreed by the Contractor and Sound Transit that time extensions due to Unavoidable Delays necessarily involve critical path operations that would prevent completion of the Work, or portion thereof, within the Contract Time. Time extensions shall be issued via a Change Order. Contractor shall not be entitled to any additional compensation or Equitable Adjustment for any Unavoidable Delay.

E. Concurrent Delay

If Sound Transit determines that there are delays to the project as a result of concurrent delays, Sound Transit may grant a time extension. However, no compensation will be due to the Contractor for this time extension due to the concurrent nature of delays. Concurrent delay means a situation where both Contractor and Sound Transit are responsible for delays affecting the critical path where none of the delay events are utilizing available project float. If a delay for which Contractor seeks compensation under Article 10.02F is caused concurrently with either Avoidable Delay or Unavoidable Delay, then Sound Transit is only responsible for that portion of any compensable delay which it caused in excess of such Avoidable Delay or Unavoidable Delay, provided Contractor is able to prove such apportionment.

F. Compensation for Certain Delays

To the extent that the Contractor demonstrates (a) that the Contractor has been delayed in completion of the Work by reason of changes made by Sound Transit under these General Conditions, or a Stop Work Order, or a failure by Sound Transit to comply with its obligations under the Contract;

(b) that the Contractor was not concurrently responsible for the delay; (c) that the Contractor has suffered actual losses as a result of the delay; (d) that but for Sound Transit's, or those for whom it's responsible, actions the Contractor would not have suffered such losses; and (e) that the Contractor could not have mitigated such actual losses despite taking all precautionary and remedial actions; then Sound Transit shall pay to the Contractor as full compensation for any such delay, and for any actual and real disruption which may have been associated with any such delay which the Contractor can clearly quantify and calculate, the amount of the actual loss as computed in accordance with the Contract Documents, provided that the Contractor shall strictly comply with the notice and other claims procedures set forth in Article 10.01, Claims. Unless the Contractor satisfies the provisions of this Article, the Contractor's sole remedy for Sound Transit-caused delay shall be an extension of time under Paragraph 10.02B, Extension of Time for Certain Delays.

In no event may Contractor or any of its Subcontractors at any tier recover compensation for unabsorbed home office overhead unless (1) Sound Transit directs a suspension of indefinite duration due to Sound-Transit-caused circumstances and (2) Contractor and/or its Subcontractors were unable, in the exercise of reasonable care, to reallocate resources so as to mitigate losses or damages.



ARTICLE 11 DISPUTE RESOLUTION

11.01 PURPOSE OF DISPUTE RESOLUTION

The purpose of this Dispute Resolution Article is to provide a structured approach for the parties to resolve disputes fairly at the lowest level possible without incurring significant administrative costs. It is agreed by the parties that the parties shall enter into the dispute resolution process in good faith and that use of the dispute resolution processes for purposes other than resolving a legitimate dispute (e.g. as a delay tactic) shall be evidence of bad faith in the performance of this Contract.

11.02 CONTINUATION OF WORK WHILE DISPUTE RESOLVED

At all times during the course of the Claim, conflict or dispute resolution, the Contractor agrees to continue to perform the Work with due diligence, unless a Stop Work Order under Article 12.01 has been issued by Sound Transit.

11.03 DUTY TO MITIGATE

Both parties have a duty to take all reasonable steps necessary to mitigate losses resulting from the Claim or dispute whether those losses are their own or another party's losses

11.04 PARTNERING

A. Preventing Conflict

1. The parties agree to use the principles of Project Partnering: collaboration and cooperation to identify and engage in measures to prevent and resolve potential sources of conflict before they escalate into disputes, claims, or legal actions. Such measures should extend to all levels of the Work, including lower-tiered Subcontractors, and may include the following:
 - a. Conducting a one-day workshop to "kick-off" the performance of the Work by introducing the concepts of Project Partnering and holding follow-up workshops at least annually.
 - b. Developing and implementing a Partnering Action Plan devoted to developing and maintaining a collaborative atmosphere on the project at all levels.
 - c. Developing and implementing a Dispute Escalation Process.
 - d. Conducting facilitated, Executive Partnering Sessions among the senior managers of each party to discuss issues related to potential conflicts and to engage in collaborative problem solving.
 - e. Conducting training for all parties in teambuilding, collaborative problem solving and conflict resolution skills.
 - f. Conducting evaluations of the Project's partnering efforts.
 - g. Including language from this Article in contracts for Subcontractors who become involved in the performance of the Work.
2. Sound Transit will provide the partnering facilitator and facilities. All other costs associated with the Contractor's participation in the partnering program shall be included



in the Contract Price.

B. Resolving Conflicts

1. Sound Transit and the Contractor agree to use their best efforts to resolve disputes arising out of or related to this Contract using good faith negotiations and the principles of Project Partnering by developing and implementing a Dispute Escalation Process that provides for the timely resolution of disputes as close to the their point of origin as possible. It is agreed that the foregoing will not negate any of the Contract requirements for providing timely notice and the timely submission of documents that are required elsewhere in the Contract Documents.
2. In the event the parties are unable to resolve their dispute using the Dispute Escalation Process, if a Dispute Review Board (DRB) has been established for this Contract and if the claim is over \$250,000, the dispute shall be referred to a DRB as a condition precedent to mediation. If the claim is \$250,000 or less or, if no DRB has been established for this Contract or, if the dispute remains unresolved after a hearing by and recommendation from the DRB, the dispute shall be referred to mediation as a condition precedent to the commencement of a civil action. For mediation, a mediator shall be chosen that is agreeable to all parties involved in the dispute and such agreement shall not be unreasonably withheld. All statements made by parties involved in the dispute to the mediator shall remain confidential and shall not be disclosed by the mediator in any litigation or other claim proceedings. All parties hereby agree to such terms and signature of the Contract provides written confirmation of these terms.

11.05 DISPUTES REVIEW BOARD

- A. A Disputes Review Board (DRB) may be established to assist in resolving claims arising out of this Contract. Disputed claims may be heard by the DRB only after the claims process detailed in Article 10.01, Claims, has been exhausted.
- B. The provisions for establishing a DRB, if a DRB is to be utilized in this Contract, are provided below. The form of the Three Party Agreement to be used in establishing a DRB will also be provided in that section.
- C. In the event a dispute arises under this Contract, it may be handled by a DRB in the following manner. Each party to this Contract shall appoint one member to the DRB. These two appointed members shall jointly appoint an additional member. The DRB shall review the facts, Contract Documents and applicable statutes and rules and make a determination of the dispute as quickly as reasonably possible. The determination of the DRB shall be final and binding on the parties hereto only if the dispute resolution is documented in writing and bilaterally agreed to. Sound Transit and Contractor agree that, the existence of a dispute notwithstanding, they will continue without delay to carry out all their respective responsibilities under this Contract.
- D. Where no approved DRB is currently established or currently operating, the parties will utilize their best efforts to negotiate resolution of claims in good faith.

11.06 EXHAUSTION OF ADMINISTRATIVE REMEDIES/TIME LIMITATION FOR SUIT

It is the intention of this Article that differences between the parties arising under and by virtue of the Contract shall be brought to the attention of Sound Transit at the earliest possible time in order that such matters may be settled without a claim being filed, if possible, or other appropriate action promptly taken.



The Contractor agrees to defer, in the absence of special written notice given by Sound Transit, the commencement of any legal action against Sound Transit on a matter required to be covered by written Notice of Intent to Claim pursuant to Paragraph 10.01A, Notice of Intent to Claim, until all of the administrative and dispute resolution processes have been exhausted. Contractor may not sue, cross-claim or bring any action of any kind whatsoever against Sound Transit after the expiration of one hundred eighty (180) days from Final System Acceptance, provided, however, that the proper pendency of contract-required dispute resolution procedures shall toll this deadline until thirty (30) days after such contract-required dispute resolution procedure is concluded.

ARTICLE 12 SUSPENSION AND TERMINATION

12.01 STOP WORK ORDER

- A. Sound Transit may at any time and for any reason within its sole discretion issue a written order to the Contractor thereby suspending, delaying, or interrupting all or any part of the Work for a specified period of time ("Stop Work Order"). A Stop Work Order must be in the form of an explicit written Notice and will not be inferred from any oral statement, course of conduct or informal field communication, except in the case of an emergency or exigent safety concern.
- B. In the event that it becomes necessary for Sound Transit to suspend all, or a part, of the Work, Sound Transit will deliver a written Stop Work Order to the Contractor, which shall describe the following:
 - 1. Identification of the work to be suspended;
 - 2. The date and time upon which the Stop Work Order shall be effective;
 - 3. The period of time during which Work will be suspended, if known;
 - 4. Directions to be taken regarding subcontracts; and Other instructions required to safeguard the Work and to prevent property damage and personal injury.
- C. The Contractor shall comply immediately with any written order it receives from Sound Transit suspending the Work and take all reasonable steps to minimize costs allocable to the Work covered by the suspension during the period of Work stoppage. The Contractor shall resume performance of the suspended Work upon expiration of the notice of suspension, or upon direction of Sound Transit.
- D. Within the period specified by the Stop Work Order, or within any extension of that period, Sound Transit may:
 - 1. Terminate the work covered by the Stop Work Order;
 - 2. Cancel the Stop Work Order; or
 - 3. Allow the period of the Stop Work Order to expire.
- E. Costs Associated with a Stop Work Order
 - 1. If a Stop Work Order is canceled or the period of the Stop Work Order expires, the Contractor shall resume work.
 - 2. The Contractor may be allowed an increase in the Total Contract Price or an extension of time, or both, directly attributable to any suspension, provided that:



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- a. The Contractor submits a Request for Change in accordance with the requirements of the Contract Documents;
 - b. The Stop Work Order results in an increase in the time required for, or in Contractor's cost properly allocable to, the performance of any part of this Contract; and
 - c. The Stop Work Order was not caused by Contractor's default or other act or omission within the control or responsibility of Contractor.
 - 3. No adjustment shall be made under this Paragraph for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment or extension of time is provided or excluded under any other term or condition of this Contract.
 - 4. The provisions of this Paragraph shall only apply if a written Stop Work Order is issued by Sound Transit.
 - F. During a suspension of work, Contractor shall take appropriate action to prevent damage to or deterioration of the Work. Contractor shall repair or replace, at no additional cost to Sound Transit Work that is damaged or deteriorated during a Work stoppage due to Contractor's failure to comply with this Paragraph. If Sound Transit finds that the Contractor is not taking appropriate action and the Contractor fails to take the appropriate action within the time frame specified by Sound Transit in written notice to the Contractor, Sound Transit may take appropriate action and recover from the Contractor the reasonable costs of such action.
 - G. In the event that a suspension of the work is ordered, the Contractor shall do all the work necessary to provide any safe, smooth, and unobstructed passageway through the work as deemed necessary by the Regional Program Manager for use by Sound Transit, other Sound Transit contractors, public agencies or their contractors, and/or public traffic during the period of such suspension as specified in the Contract Documents. In the event that the Contractor fails to perform the work above specified, Sound Transit will perform such work and the cost thereof shall be deducted from payments due the Contractor. If the suspension is due to some failure on the part of the Contractor, all costs and delays shall be at no additional expense to Sound Transit.
 - H. In the event of a suspension of the Work, the Contractor shall not be relieved of the Contractor's responsibilities as set forth in Article 7, Legal Requirements.

12.02 TERMINATION FOR DEFAULT

- A. Sound Transit will have the right to terminate the Contract in whole or in part, for default, under any of the following circumstances:
 - 1. If the Contractor refuses or fails to prosecute the Work with such diligence as will ensure its completion within the Contract Time and any extension thereof;
 - 2. Material failure of the Contractor to perform any obligation required under the Contract or violation of any duty required of the Contractor, including but not limited to the following:
 - a. Violation of a legal authorized order or requirement of Sound Transit by the Contractor;



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- b. Abandonment of the Contract;
 - c. Failure of the Contractor to pay its undisputed debts owing to any parties performing Work on the Contract, provided that such failure continues for a period of fourteen (14) days after written notice to the Contractor by Sound Transit;
 - d. Failure to comply with any law, ordinance, rule, regulation, or order of a legal authority applicable to the Contractor, the Work, the Contract, or the Project;
 - e. Failure to indemnify any party that the Contractor is obligated to indemnify under the General Conditions and other provisions of the Contract;
 - f. Failure to replace rejected Work or correct rejected workmanship when directed by Sound Transit;
 - g. Failure to provide required insurance and/or bonds, or proceeds thereof;
 - h. Submittal of false or misleading information or Claims to Sound Transit; or
 - i. Disregard of applicable laws, ordinances, rules, codes, regulations, orders, or similar requirements of any public entity having jurisdiction.
- B. If the Contractor is adjudged bankrupt or insolvent, or makes a general assignment for the benefit of creditors, or if the Contractor or a third party files a petition to take advantage of any debtor's act or to reorganize under the bankruptcy or similar laws concerning the Contractor, or if a trustee or receiver is appointed for the Contractor or for any of the Contractor's property on account of the Contractor's insolvency, and the Contractor or its successor in interest does not provide adequate assurance of future performance in accordance with the Contract within fifteen (15) days of receipt of a request for assurance from Sound Transit.
- C. If, in the opinion of Sound Transit, the Contractor is in default of the Contract, Sound Transit will issue a written Notice of Default to the Contractor and its Surety. If the Contractor, within fourteen (14) days after receipt of such notice, fails to remedy or provide assurance acceptable to Sound Transit of its specific plan and timetable to remedy the default, Sound Transit may terminate the Contractor's right to proceed under all or such part of the Contract as Sound Transit deems to be in its best interest. Sound Transit shall furnish written Notice of Termination for Default to the Contractor, upon which date the Termination for Default shall be effective. The Contractor and its Surety shall be liable for any damage to Sound Transit resulting from the Contractor's refusal or failure to complete the Work in the specified time.
- D. Upon receipt of a Notice of Termination for Default from Sound Transit, the Contractor shall, except as otherwise directed by Sound Transit:
- 1. Stop all Work under the Contract on the date and to the extent specified in the Notice of Termination for Default.
 - 2. Place no further orders or Subcontracts for materials, equipment, or services except as may be necessary for completion of such portions of the Work expressly excluded from the Notice of Termination.
 - 3. Communicate any Notice of Termination to the affected Subcontractors and Suppliers,



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- and any other parties at any tier, and take reasonable steps to minimize cancellation charges and other costs arising from termination.
4. Terminate all orders and Subcontracts to the extent that they relate to the performance of Work covered by the Notice of Termination or, at the option of Sound Transit, assign to the Surety or any replacement contractor all such Subcontracts and purchase orders.
 5. Comply with all other reasonable and legal requirements of Sound Transit as may be specified in the Notice of Termination.
- E. Upon Sound Transit's termination of the Contractor's right to proceed with the Work because of the Contractor's default under the Contract, Sound Transit shall have the right to complete the Work by whatever means and methods it deems advisable, including transfer of performance of the work from the Contractor to the Surety. Sound Transit shall have the right to take possession of and use any or all the Contractor's design, goods, facilities, tools, equipment, and property of any kind, at the Project, or related thereto, provided by or on behalf of the Contractor to complete the Work or any portion thereof, without being responsible to the Contractor for fair wear and tear. The Contractor shall have no rights in such property during its use by Sound Transit. Sound Transit may complete the Work by obtaining the services of another Contractor, or by any other reasonable and legal means that Sound Transit deems in its best interest. Sound Transit shall have the right to exercise its sole discretion as to the manner, method and reasonableness of the costs of completing the work subject to a reasonable duty to mitigate costs. Materials and equipment for which Sound Transit has paid any amount to the Contractor may be incorporated in the Work regardless of whether they are stored at the site or elsewhere.
- F. The expense of completing the Work together with a reasonable charge for engineering, managerial, and administrative services arising from the default shall be charged to the Contractor. Sound Transit shall deduct said amount out of any monies that may be due or may at any time thereafter become due the Contractor. In case such expense is in excess of the sum that would otherwise have been payable to the Contractor under the Contract, the Contractor or its Surety shall promptly pay the amount of said excess to Sound Transit upon notice thereof. Sound Transit may, at its sole discretion, withhold all or any part of any Partial Payments or other monies otherwise due the Contractor until completion and final settlement of the Work covered by the Notice of Termination for Default.
- G. If Sound Transit terminates the Contractor for default, the resulting damage shall include, but not be limited to, actual and liquidated damages, any increased costs incurred by Sound Transit in completing the Work, and amounts paid to third parties by Sound Transit on account of any claims made against Sound Transit relating to the Work.
- H. If the Contract is terminated for default, Sound Transit may require that the Contractor transfer title to and deliver the following items to Sound Transit as directed: any goods, work in progress, tools, dies, jigs, fixtures, plans, drawings, information, contract rights, and other items that the Contractor has specifically produced or acquired for the terminated portion of the Contract and that would have been required to be furnished to Sound Transit if the Contract had been completed. The Contractor shall also protect and preserve property in its possession at its sole expense in which Sound Transit has an interest.
- I. If, after Notice of Termination for Default, it is determined for any reason that the Contractor was not in default under the provisions of the Contract, or that the Contractor was properly entitled to an extension of time under the provisions of the Contract, the rights, obligations, and remedies



of the parties shall be the same as if the Notice of Termination for Default had been issued pursuant to the Article entitled Termination for Convenience.

12.03 TERMINATION FOR CONVENIENCE

- A. Upon written notice to Contractor Sound Transit may terminate the Work under this Contract, in whole or in part, at any time, for the convenience of Sound Transit.
- B. After receipt of a Notice of Termination for Convenience, and unless directed otherwise by Sound Transit, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:
 - 1. Stop performance of Work and meet with Sound Transit to develop a Termination Work Plan, including a scope, schedule and budget to safely terminate the Contractor's progress of Work.
 - 2. Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion of the Contract.
 - 3. Terminate all Subcontracts or orders to the extent they relate to the work terminated or, at the option of Sound Transit, assign to the Surety or any replacement contractor all such Subcontracts and purchase orders. Assign to Sound Transit, as directed by Sound Transit, all right, title, and interest of the Contractor under the Subcontract(s) terminated, in which case Sound Transit shall have the right to settle or to pay any termination settlements proposal arising out of those terminations.
 - 4. With approval or ratification to the extent required by Sound Transit, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontract; the approval or ratification will be final for purposes of this clause.
 - 5. As directed by Sound Transit, transfer title and deliver to Sound Transit (1) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the work terminated, and (2) the completed or partially completed plans, drawings, information and other property that, if the Contract had been completed, would be required to be furnished to Sound Transit.
 - 6. Complete performance of any Work not terminated.
 - 7. Take any action that may be necessary, or that Sound Transit may direct, for the protection and preservation of the property related to this Contract that is in possession of the Contractor and in which Sound Transit has or may acquire an interest.
 - 8. Use its best efforts to sell, as directed or authorized by Sound Transit, any property of the types referred to in Sub-paragraph 12.03B.5 above; provided, however, that the Contractor (1) is not required to extend credit to any purchaser and (2) may acquire the property under the conditions prescribed by, and at prices approved by, Sound Transit. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by Sound Transit under this Contract, credited to the price or cost of the work, or paid in any other manner directed by Sound Transit.
- C. Payment



In the event of a Termination for Convenience, if such termination occurs after the effective date of the Notice to Proceed, Sound Transit will pay the reasonable, verifiable direct costs incurred by the Contractor toward any incomplete item on the Partial Payment Schedule before the termination. Reimbursable costs incurred by the Contractor will be determined by taking into consideration the following facts, circumstances and limitations:

1. The budget established for the Termination Work Plan, which may include fees charged to Contractor by suppliers for cancellation of hardware and /or software custom designed and to be produced specifically for the Project.
2. The physical progress of the Work satisfactorily completed to the effective date of the termination, evaluated against the approved Partial Payment Schedule,
3. Costs of removing equipment and materials and otherwise demobilizing,
4. Costs reasonably incurred in anticipation of performing the Work; provided, said amounts are reasonable, verifiable and directly attributed to the Contractor's performance of the Work, Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory,
5. Termination for Convenience notwithstanding anything to the contrary set forth herein, the Contractor shall not be entitled to, and Sound Transit shall not be liable for, any consequential losses or damages incurred by the Contractor including, but not limited to: loss of profits, business opportunity, reputation or financing. Amounts retained and accumulated under RCW 60.28.011 will be held as provided therein for a period of not less than forty-five (45) days following termination.

12.04 SOUND TRANSIT'S RIGHTS AND OBLIGATIONS UPON TERMINATION

- A. Upon any termination contemplated herein, Sound Transit may take over the Work and prosecute the same to completion by agreement with another party or otherwise complete the Work.
- B. Upon any termination contemplated herein, amounts retained and accumulated under RCW 60.28.011 will be held as provided therein for a period of not less than sixty (60) days following termination and consistent with state law.

12.05 CONTRACTOR'S OBLIGATIONS UPON TERMINATION

Upon receipt of Notice of Termination, the Contractor shall immediately discontinue Work, but shall do such Extra Work as may be ordered by Sound Transit to safeguard the Work then completed, to safeguard the materials and equipment then delivered to the site and to leave the Work in a safe and useful condition. The Contractor shall promptly deliver, or otherwise make available to Sound Transit, all Contract Records reasonably necessary for Sound Transit to complete the Work with its own forces, including but not limited to software, data, drawings, specifications, as-built drawings, calculations, reports, estimates, summaries, and other such information as the Contractor or Subcontractors may have accumulated in performing this Contract, whether completed or in progress, and all materials and equipment purchased specifically for the Contract where Sound Transit has reimbursed the Contractor for such costs. The Contractor shall also take all reasonable steps with its Suppliers and Subcontractors to minimize cancellation charges and other costs.

12.06 OWNERSHIP OF EQUIPMENT, MATERIALS AND SUPPLIES UPON TERMINATION

As of the date of termination, all the Contractor's right, title and interest in and to equipment, materials,



and supplies ordered by the Contractor prior to the termination (including placement or priority in production runs of materials, equipment, or supplies), whether or not they have been delivered to the site, shall be vested in Sound Transit and the Contractor shall, upon demand of Sound Transit, execute and deliver to Sound Transit all requisite bills of sale, assignments, and other documents of transfer that may be necessary to give effect to the intention of the termination procedures set forth in this Article.

END OF SYSTEMS GENERAL CONDITIONS



SECTION 02 – FEDERAL PROVISIONS

ARTICLE 1 INCORPORATION OF FTA PROVISIONS

1.01 APPLICABILITY OF FEDERAL GRANT CONTRACT

- A. This procurement may be subject to one or more financial assistance contracts between Sound Transit and the U.S. Department of Transportation (DOT), which incorporate the current FTA Master Agreement and Circular 4220.1 as amended.
- B. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1, as amended, and the Master Grant Agreement, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Contract. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any Sound Transit request that would cause Sound Transit to be in violation of the FTA terms and conditions.
- C. The FTA Master Agreement obligates Sound Transit to incorporate certain provisions into this Contract and any lower tier subcontracts at any level and to take appropriate measures to ensure that Contractor and its lower tier Subcontractors at any level comply with certain applicable requirements set forth in the Master Agreement. The following provisions of the FTA Master Agreement are hereby incorporated by reference into this Contract, and the Contractor shall comply with all such requirements.
- D. Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement between Sound Transit and FTA, as they may be amended or promulgated from time to time during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this contract.
- E. Copies of the FTA Circular 4220.1, as amended, and the Master Grant Agreement are available from Sound Transit.

1.02 FEDERAL FUNDING LIMITATION

The Contractor understands that a portion of the funds to pay for the Contractor's performance under this Contract are anticipated to be made available from the United States Department of Transportation through the Federal Transit Administration (FTA). All such funds must be approved and administered by FTA. Sound Transit's obligation hereunder is, in part, payable from funds that are appropriated and allocated by FTA for the performance of this Contract. If such funds are not allocated, or ultimately are disapproved by FTA, Sound Transit may be required to terminate or suspend the Contractor's services. In such event, the Contract may at Sound Transit's option be terminated for convenience in accordance with these General Conditions.

1.03 NO OBLIGATION BY THE FEDERAL GOVERNMENT

- A. Notwithstanding that the Federal Government may have concurred in or approved the solicitation for this Contract, the Federal Government is not a party to this Contract and has no obligations or liabilities to any entity other than Sound Transit, including the Contractor and its Subcontractors and Suppliers at any tier.
- B. The Contractor agrees to include the above clause in each Subcontract financed in whole or in



part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the Subcontractor who will be subject to its provision.

1.04 CERTIFICATION REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS

- A. This contract is a covered transaction for purposes of 49 CFR Part 29. As such, the Contractor is required to verify that the Contractor, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.
- B. The Contractor is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.
- C. By signing and submitting its Bid, the Bidder certifies as follows:

The certification in this clause is a material representation of fact relied upon by Sound Transit. If it is later determined that the Bidder knowingly rendered an erroneous certification, in addition to remedies available to Sound Transit, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The Bidder agrees to comply with the requirements of 49 CFR 29, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The Bidder further agrees to include a provision requiring such compliance in its lower tier covered transactions.

1.05 FEDERAL LOBBYING RESTRICTIONS

- A. This Contract is subject to Section 319, Public Law 101-121 (31 U.S.C. §1352) and U.S. DOT regulations "New Restrictions on Lobbying," 49 CFR Part 20, which prohibits Federal funds from being expended to influence or to attempt to influence an officer or employee of any agency, members of Congress, an office or employee of Congress or an employee of a Member of Congress in connection with the awarding of any federally funded contract, the making of any Federal grant or loan, or entering into any cooperative agreement and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- B. Contractors and Subcontractors at any time who apply or bid for an award of \$100,000 or more shall file the certification required by 49 CFR Part 20, "New Restrictions on Lobbying." Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or any employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier shall also disclose the name of any registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-Federal funds with respect to that Federal contract, grant or award covered by 31 U.S.C. 1352. Such disclosures are forwarded from tier to tier up to the recipient.
- C. The Contractor shall submit the "Certification Regarding Lobbying," included in the Bid documents. The Contractor's signature on this certification shall certify that: a) it has not engaged in the prohibited activity and b) the language of the certification shall be included in all lower tier subcontracts, which exceed \$100,000, and that all such Subcontractors shall certify and disclose accordingly. Sound Transit is responsible for keeping the certification form of the Contractor, who is in turn responsible for keeping the certification forms of Subcontractors. Further, by executing the Contract, the Contractor agrees to comply with these laws and regulations.



- D. If the Contractor has engaged in any lobbying activities to influence or attempt to influence the awarding of this Contract, the Contractor must disclose these activities. In such a case, the Contractor shall complete Standard Form SF-LLL, "Disclosure of Lobbying Activities." Sound Transit must also receive all disclosure forms.
- E. The Contractor and any Subcontractors shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of a previously filed disclosure form. An event that materially affects the accuracy of the information reported includes:
 - 1. A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence this federally funded Contract; or
 - 2. A change in the person(s) influencing or attempting to influence this federally funded Contract; or
 - 3. A change in the officer(s), employee(s) or member contracted to influence or attempt to influence this federally funded Contract.

1.06 PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS

- A. The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § § 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this Contract. Upon execution of the underlying contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA-assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.
- B. The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Contractor, to the extent the Federal Government deems appropriate.
- C. The Contractor agrees to include the above two clauses in each Subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the Subcontractor who will be subject to the provisions.

1.07 ANTI-KICKBACK

- A. Sound Transit and contractors are required to comply with the Copeland "Anti-Kickback" Act, 18 USC § 874 and 40 USC § 276(c), as supplemented in U.S. Department of Labor regulations, 29 CFR Part 3. Under state and federal law, it is a violation for Sound Transit employees, proposers, bidders, contractors or subcontractors to accept or offer any money or benefit as a reward for favorable treatment in connection with the award of a contract or the purchase of goods or services.
- B. "Kick-Back" as defined by Federal Acquisition Regulations (FAR), means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind that is provided



directly or indirectly to any prime contractor, prime contractor employee, subcontractor or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contractor in connection with a subcontract relating to a prime contract.

1.08 CIVIL RIGHTS

In addition to the provisions in Section 00 73 39 00, Diversity Program Provisions, the following requirements pertaining to nondiscrimination and civil rights apply to the underlying contract:

A. Nondiscrimination

In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, Executive Order 11246 as amended, and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, gender identity, status as a parent, marital status, age, or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

B. Equal Employment Opportunity

The following equal employment opportunity requirements apply to the underlying contract:

1. Race, Color, Creed, National Origin, Sex

In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulation, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 et seq., (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

As required by 41 CFR 60-1.4, during the performance of this Contract, the Contractor agrees as follows:

- a. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, marital status, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, gender identity, status as a parent, marital status, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- b. The Contractor will, in all solicitations or advertisements for employees placed by



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- or on behalf of the Contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, marital status or national origin.
- c. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this Section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
 - d. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, as amended, and of the rules, regulations, and relevant orders of the Secretary of Labor.
 - e. The Contractor will furnish all information and reports required by Executive Order 11246, as amended, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his or her books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
 - f. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246, as amended, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246, amended, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
2. The Contractor will include the portion of the sentence immediately preceding paragraph 1.a and the provisions of paragraphs 1.a through 1.f in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246, as amended, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance, provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the Contractor may request the United States to enter into such litigation to protect the interests of the United States.
3. Age
- a. The Contractor and its Subcontractors shall include the equal employment opportunity clause set forth in paragraph 1.a above in each of their non-exempt Subcontracts. In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. §§ 623 and federal transit law at 49 U.S.C. § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.



4. Disabilities

In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the "Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

5. Federal Equal Employment Opportunity Requirements

As required by 41 CFR 60-4.2, the Contractor shall take into account the following provisions in performing the Work:

- a. The Contractor shall comply with the Federal Equal Employment Opportunity (EEO) Requirements.
- b. The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows (unless modified by the federal government):
 - Minority participation in each trade (King County) – 7.2%
 - Minority participation in each trade (Snohomish County) – 7.2%
 - Minority participation in each trade (Pierce County) – 6.2%
 - Female participation in each trade (Nationwide) – 6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the Contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

- c. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) Business Days of award of any construction Subcontract in excess of \$10,000 at any tier for construction work under this Contract. The notification shall list the name, address and telephone number of the Subcontractor; employer identification number of the



Subcontractor; estimated dollar amount of the Subcontract; estimated starting and completion dates of the Subcontract; and the geographical area in which the Subcontract is to be performed.

- d. As used in this Notice, and in this Contract, the “covered area” is Snohomish, King and Pierce Counties of the State of Washington.

6. EEO Construction Contract Specifications

As required by 41 CFR 60-4.3, the Contractor shall comply with the following:

Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)

- a. As used in these specifications:
 - (1) “Covered area” is Snohomish, King and Pierce Counties of the State of Washington.
 - (2) “Director” means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
 - (3) “Employer identification number” means the Federal Social Security number used on the Employer’s Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
 - (4) “Minorities” includes:
 - (a) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (b) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (c) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification.
- b. Whenever the Contractor, or any Subcontractor at any tier subcontracts a portion of the Work involving any construction trade, it shall physically include in each Subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which are set forth in this Contract.
- c. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of



any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

- d. The Contractor shall implement the specific affirmative action standards provided in paragraphs g(1) through g(16) below. The goals set forth in this Contract are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.
- e. Neither the provisions of any collective bargaining agreement, nor the failure by a union with which the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
- f. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
- g. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:
 - (1) Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.



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- (2) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
 - (3) Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.
 - (4) Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor minority persons or women sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
 - (5) Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and training programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under g(2) above.
 - (6) Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
 - (7) Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
 - (8) Disseminate the Contractor's EEO policy externally by including it in any



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- advertising in the new media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipate doing business.
- (9) Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
 - (10) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.
 - (11) Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
 - (12) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
 - (13) Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
 - (14) Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
 - (15) Document and maintain a record of all solicitations of offers for subcontract from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
 - (16) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
- h. The Contractor is encouraged to participate in voluntary associations which assist in fulfilling one or more of its affirmative action obligations (paragraphs g(1) through g(16) above). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under g(1) through g(16) of these specifications provided that the



Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

- i. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
- j. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.
- k. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
- l. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
- m. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph g of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
- n. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of



pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

- o. Nothing herein provided shall be construed as limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

- 7. The Contractor also agrees to include these requirements in each Subcontract financed in whole or in part with Federal assistance provided by FTA, modified only if necessary to identify the affected parties.

C. Flow Down

The Civil Rights requirements flow down to the Contractor and its subcontractors at every tier.

1.09 BUY AMERICA REQUIREMENTS

- A. The Contractor agrees to comply with the requirements of section 165(a) of the Surface Transportation Assistance Act of 1982, as amended, and the applicable regulations in 49 CFR Part 661, which provide that federal funds may not be obligated unless steel, iron and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by the FTA or the product is subject to a general waiver. General Waivers are listed in 49 CFR 661.7. Separate requirements for rolling stock are set out in section 165(b)(3), of the Surface Transportation Assistance Act of 1982 and 49 CFR 661.11. Rolling stock must be assembled in the United States and have a 60 percent domestic content.
- B. A bidder or offeror must submit to Sound Transit the appropriate Buy America certification, attached herein, with all bids or offers on FTA-funded contracts, except those subject to a general waiver. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive. This requirement does not apply to lower tiersubcontractors
- C. Whether or not a Bidder certifies that it will comply with the applicable requirement, Bidder will be bound by its original certification and is not permitted to change its certification after the time that the Bid is submitted, except for clerical error. A Bidder that certifies that it will comply with the applicable Buy America requirements may not change its certification at any point, and is not eligible for waiver of those requirements. (Buy America Regulations, 49 CFR Part 661.13(c))
- D. If the Bidder is unable to certify compliance, but believes that it may qualify for an exception to the requirement consistent with section 165(a) of the Surface Transportation Assistance Act of 1982, as amended, Sound Transit, on behalf of the Bidder, will tender the request for exception(s) to FTA for review and approval. Sound Transit does not warrant that any such request will be acted upon in accordance with the Bidder's time frame. Failure to achieve an exception will not relieve the Bidder of its responsibilities under this Section.

1.10 CARGO PREFERENCE

Pursuant to 46 CFR Part 381, the Contractor agrees:

- A. To utilize privately owned United States flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved,



whenever shipping any equipment, materials, or commodities pursuant to this Contract, to the extent such vessels are available at fair and reasonable rates for United States flag commercial vessels.

- B. To furnish within twenty (20) Days following the date of loading for shipments originating within the United States, or within thirty (30) Business Days following the date of loading for shipment originating outside the United States, a legible copy of a rated, commercial ocean bill of lading in English for each shipment of cargo described in paragraph A above to Sound Transit (through the prime Contractor in the case of Subcontractor bills of lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, 400 Seventh Street, SW, Washington, D.C., 20590, marked with appropriate identification of the Project.
- C. To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this Contract.

1.11 FLY AMERICA REQUIREMENTS

The Contractor agrees to comply with 49 U.S.C. § 40018 (the "Fly America" Act) in accordance with the General Services Administration's regulations at 41 CFR Part 301-10, which provide that recipients and subrecipients of Federal funds and their contractors are required to use U.S. Flag air carriers for U.S. Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. The Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S. flag carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. The Contractor agrees to include the requirements of this Section in all subcontracts that may involve international air transportation.

1.12 RECOVERED MATERIALS

- A. The Contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in subpart B of 40 CFR Part 247.
- B. These requirements flow down to all Contractor and Subcontractor tiers.

1.13 ENERGY CONSERVATION

- A. The Contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.
- B. These requirements extend to all third party contractors and their contracts at every tier and subrecipients and their subagreements at every tier.

1.14 CLEAN WATER

- A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. The Contractor agrees to report each violation to Sound Transit and understands and agrees that Sound Transit will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.



- B. The Contractor also agrees to include these requirements in each Subcontract exceeding \$100,000 financed in whole or in part with Federal assistance provided by FTA.

1.15 CLEAN AIR

- A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §§ 7401 et seq. The Contractor agrees to report each violation to Sound Transit and understands and agrees that Sound Transit will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.
- B. The Contractor also agrees to include these requirements in each Subcontract exceeding \$100,000 financed in whole or in part with Federal assistance provided by FTA.

1.16 MIGRATORY BIRD TREATY ACT

The Contractor shall comply with the Migratory Bird Treaty Act (MBTA), 16 U.S.C. Sections 703-712, 50 C.F.R. Section 10.13 and all amendments, which makes it illegal for anyone to take, possess, import, export, transport, sell, or offer for sale, purchase, or barter, any migratory bird, or other parts, nests, or eggs of such a bird except unless and except as permitted by regulations or under the terms of a valid permit issued by the Secretary of the Interior.

1.17 SEISMIC SAFETY

The Contractor agrees that any new building or addition to an existing building will be constructed in accordance with the standards for Seismic Safety required in Department of Transportation Seismic Safety Regulations 49 CFR Part 41 and will certify to compliance to the extent required by the regulation. The contractor also agrees to ensure that all work performed under this contract including work performed by a Subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance issued on the project.

1.18 ELECTRONIC AND INFORMATION TECHNOLOGY

When providing reports or other information to Sound Transit, or to the Federal Transit Administration (FTA), among others, on behalf of Sound Transit, the Contractor agrees to prepare such reports or information using electronic or information technology capable of assuring that the reports or information delivered will meet the applicable accessibility standards of Section 508 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794d, and U.S. ATBCB regulations, "Electronic and Information Technology Accessibility Standards," 36 C.F.R. Part 1194.

1.19 DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

In addition to the Disadvantaged Business Enterprise Program provisions set forth in Section 00 733 39, the Contractor shall comply with the following requirements:

- A. As a recipient of financial assistance from the federal Department of Transportation (DOT), through the Federal Transit Administration (FTA), Sound Transit developed and administers a Disadvantaged Business Enterprise (DBE) Program in accordance with 49 Code of Federal Regulations (CFR) Part 26. The Contractor shall review and comply with applicable provisions in 49 CFR Part 26 and Section 00 73 39 of this Contract.

- B. The Contractor shall comply with the following assurance:

The Contractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of 49 CFR



Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy as Sound Transit deems appropriate.

- C. The Contractor shall include in each Subcontract it awards pursuant to this Contract the following assurance:

"The subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this subcontract. The subcontractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the subcontractor to carry out these requirements is a material breach of this subcontract, which may result in the termination of this subcontract or such other remedy as the Contractor or Sound Transit deems appropriate."

1.20 NO TEXTING WHILE DRIVING

- A. Contractor shall comply with Executive Order No. 13513, Federal Leadership on Reducing Text Messaging While Driving, October 1, 2009, 23 U.S.C.A. § 402 note, and DOT Order 3902.10, Text Messaging While December 30, 2009. Contractor shall:
1. Adopt and enforce workplace safety policies to decrease crashes caused by distracted drivers including policies to ban text messaging while driving;
 2. Contractor-owned or Contractor-rented vehicles or Government-owned, leased or rented vehicles;
 3. Privately-owned vehicles when on official Project related business or when performing any work for or on behalf of the Project; or
 4. Any vehicle, on or off duty, and using an employer supplied electronic device.
 5. Conduct workplace safety initiatives in a manner commensurate with the Contractor's size, such as:
 - a. Establishment of new rules and programs or re-evaluation of existing programs to prohibit text messaging while driving; and
 - b. Education, awareness, and other outreach to employees about the safety risks associated with texting while driving.
- B. "Driving" is defined as operating a motor vehicle on a roadway, including while temporarily stationary because of traffic, a traffic light, stop sign, or otherwise. "Driving" does not include being in your vehicle (with or without the motor running) in a location off the roadway where it is safe and legal to remain stationary.
- C. "Text Messaging" is defined as reading from or entering data into any handheld or other electronic device, including for the purpose of short message service texting, e-mailing, instant messaging, obtaining navigational information, or engaging in any other form of electronic data retrieval or electronic data communication. The term does not include the use of a cell phone or other electronic device for the limited purpose of entering a telephone number to make an outgoing call or answer an incoming call, unless the practice is prohibited by State or local law.
- D. Contractor shall include this provision in all subcontracts at all tiers.



SECTION 03 – INSURANCE REQUIREMENTS

1.01 Description

- A. Except as otherwise specified, the Consultant, shall at its sole cost and expense, obtain and maintain during the entire term of this Agreement the minimum insurance set below.
- B. In the event the Consultant is a Joint Venture, these insurance requirements shall apply to each Joint Venture member separately.
- C. By requiring such minimum insurance, Sound Transit shall not be deemed or construed to have assessed the risks that may be applicable to the Consultant under this Agreement. The Consultant shall assess its own risks and, if it deems appropriate and/or prudent, maintain greater limits and/or broader coverage.
- D. The fact that insurance is obtained by Consultant shall not be deemed to release or diminish the liability of the Consultant, including without limitation, liability under the indemnity provisions of this Agreement. Damages recoverable by Sound Transit shall not be limited to the amount of the required insurance coverage.

1.02 Insurance Coverages

- E. **Commercial General Liability:** Commercial General Liability for bodily injury including death, personal injury, and property damage, with contractual and completed operations liability endorsements, and Employer's Liability coverage, utilizing insurers and coverage forms acceptable to Sound Transit, with limits of at least \$5,000,000 per occurrence and \$5,000,000 general aggregate, with \$5,000,000 products and completed operations coverage.
- F. **Commercial Automobile Liability:** Commercial Auto Liability coverage for bodily injury and property damage utilizing insurers and coverage forms acceptable to Sound Transit, with a limit of at least \$1,000,000 combined single limit.

Such liability insurance, identified in 2.a and 2.b above, shall name Sound Transit, its officers, directors, agents, and employees and Community Transit, King County, Kitsap Transit, Pierce Transit, Everett Transit and Washington State Ferries as additional insured with respect to the work, including completed operations, under this Agreement.

- G. **Workers Compensation:** The Consultant will secure its liability for industrial injury to its employees in accordance with the provisions of Title 51 of the Revised Code of Washington. The Consultant will be responsible for Workers Compensation insurance for any subconsultant who provides work under subcontract.

If the Consultant is qualified as a self-insurer under Chapter 51.14 of the Revised Code of Washington, it will so certify to Sound Transit by submitting a letter



signed by a corporate officer, indicating that it is a qualified self-insurer, and setting forth the limits of any policy of excess insurance covering its employees.

The protection provided by the Workers Compensation Policy Part 2 (Employers Liability), or in states with monopolistic state funds, the protection provided by the Stop Gap endorsement to the General Liability must have a minimum required limit of \$1,000,000.

- H. **Professional Liability:** This Agreement includes “professional services”. The Consultant shall maintain the appropriate Professional Liability insurance, with limits of liability of at least \$5,000,000 per claim, for damages sustained by reason of or in the course of operations under this Agreement, whether occurring by reason of acts failing to meet the standard of care required by this Agreement, negligent acts, errors, or omissions of the Consultant.
- I. **Commercial Crime and Employee Dishonesty:** A policy with minimum required limits of \$2,500,000 per occurrence for losses of money and property as a result of theft, burglary, forgery, alteration, disappearance and destruction and for losses due to the dishonest acts of employees.
- J. **Railroad Protective Liability:** During any construction or demolition work within 50 feet on either side of railroad or light rail tracks, Contractor shall provide Railroad Protective Liability coverage either by (1) endorsing the General Liability policy with an ISO form CG 24 27 10 01 – Contractual Liability – Railroads endorsement, or equivalent, or (2) obtaining a separate Railroad Protective Liability policy. This insurance shall name Central Puget Sound Regional Transit Authority, dba Sound Transit, its officers, directors, agents and employees as additional insured with coverage of at least \$2,000,000 per occurrence and \$6,000,000 in the aggregate. The coverage shall be effective for the entire duration of the work to be performed. The policy shall be issued on a standard ISO form CG 00 35 10 93, or equivalent.
- K. **Network Privacy & Security Insurance / Cyber Liability:** Contractor agrees to purchase and maintain throughout the term of this Agreement, Privacy & Security liability insurance (or its equivalent “cyber/network security” insurance) covering liabilities resulting or arising from acts, errors, or omissions, in connection with the services provided under this Agreement, which are associated with any breach or loss of any personally identifiable information. Such insurance shall provide coverage for up to \$5,000,000.00 per claim. Costs and damages to be covered by this insurance policy shall include without limitation: (a) costs to notify individuals whose personally identifiable information was lost or compromised; (b) costs to provide credit monitoring and credit restoration services to individuals whose personally identifiable information was lost or compromised; (c) costs and damages associated with third-party claims arising from the breach or loss of personally identifiable information, including litigation costs and settlement costs; and (d) any investigation and enforcement costs. The policy must be kept in force during the life of the Agreement and for three (3) years (either as a policy in force or extended reporting period) after Agreement termination. Contractor shall also ensure that any Subcontractors that create,



receive, maintain, or transmit protected health information or personally identifiable information on behalf of the Contractor agree to the same insurance requirements that apply to the Contractor.

- L. **Other Insurance:** Other insurance as may be deemed appropriate to cover the specified risk and exposure of the scope of work or changes to the scope of work evaluated by Sound Transit. The costs of which shall be borne by contracting parties as mutually agreed.

1.03 General Provisions

- A. **Certificates and Policies:** Prior to commencement of Work for this Agreement, the Consultant shall provide Sound Transit with certificates of insurance showing insurance coverage in compliance with the foregoing paragraphs. All insurance coverage outlined above shall be written by insurance companies meeting Sound Transit's financial security requirements, (A.M. Best's Key Rating A-; VII or higher). **Such certificates shall reference Sound Transit's contract number, RTA/RP 0119-17 and title, next generation ORCA Systems Integrator.** The Consultant will provide 30 calendar days' advance written notice to Sound Transit in the event the Consultant's insurance policies are cancelled, not renewed, or materially reduced in coverage. Should the Consultant neglect to obtain and maintain in force any of the insurance required in this Section, Sound Transit may suspend or terminate this Agreement. Suspension or termination of this Agreement shall not relieve the Consultant from insurance obligations hereunder.
- B. Taking into account the scope of work and services to be performed by a subcontractor and/or subconsultant, the Consultant shall prudently determine whether, and in what amounts, each subcontractor and/or subconsultant shall obtain and maintain commercial general liability and any other insurance coverage. Any insurance required of subcontractors and/or subconsultants shall, where appropriate and/or applicable, name Sound Transit as an additional insured.
- C. Consultant's insurance for General Liability, Automobile Liability and Railroad Protective Liability (if applicable) shall be primary as respects Sound Transit, and any other insurance maintained by Sound Transit shall be excess and not contributing insurance with the Consultant's insurance.
- D. The Consultant and its insurers shall require that the applicable insurance policy(ies) be endorsed to waive their right of subrogation against Sound Transit. The Consultant and its insurers also waive their right of subrogation against Sound Transit for loss of their owned or leased property or property under their care, custody and control.
- E. The Consultant shall provide Sound Transit with complete copies of all insurance policies to comply with the insurance requirements in this Agreement, including, but not limited to, the Additional Insured Endorsement(s) required in 2.a and 2.b above, the Waiver of Subrogation Endorsements, Primary and Non-Contributory Endorsements, Products and Completed Operations Endorsement and any other endorsements.



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- F. No provision in this Section shall be construed to limit the liability of the Consultant for work not done in accordance with the Agreement, or express or implied warranties. The Consultant's liability for the work shall extend as far as the appropriate periods of limitation provided by law and up to any legal limits.
 - G. The Consultant may obtain any combination of coverage or limits that effectively provides the same or better amounts and types of coverage as stipulated above, subject to review and approval by Sound Transit.
 - H. The Consultant warrants that this Agreement has been thoroughly reviewed by the Consultant's insurance agent/broker, who have been instructed by the Consultant to procure the insurance coverage required by this Agreement.

1.04 Claims Management

The Contractor agrees to the following claims management terms and conditions. The Contractor further agrees to include the following terms and conditions in its contract with its Subcontractors and require its Contractor to comply with the following provisions.

- I. The Contractor, after award of a Sound Transit contract, shall provide the names, titles, addresses, telephone numbers, and email addresses of the individual(s) employed by Contractor who handles insurance matters and notifies insurance companies of claims. This individual(s) will be the primary contact for communications between Sound Transit Risk Management Division and the Contractor and its Subcontractors. If the individual(s) change, Contractor shall notify Sound Transit Risk Management Division of the replacement.
- J. Contractor shall provide written notice of any incident involving bodily injury and/or property damage to Sound Transit. An "incident" is defined as any event or occurrence involving bodily injury or property damage that may give rise to an insurance claim. Incidents include those involving serious bodily injury, hospitalization, death, or property damage.
- K. Contractor's written notice to Sound Transit of any incident or claim shall include the following information:
 - 1) A description of the incident, including any bodily injuries or property damage,
 - 2) The names of anyone injured and/or whose property was damaged,
 - 3) The names and contact information of any insurance company(ies) who may provide insurance coverage related to any aspect of the incident,
 - 4) Policy number(s), claim numbers(s), and policy(ies) effective dates, and
 - 5) A copy of any written Acknowledgement of Claim Receipt issued by any applicable insurance company(ies).

If some information requested above is not available at the time of the initial report, the Contractor shall provide the missing information to Sound Transit as soon as it is available.



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- L. If Sound Transit receives a claim from a Third Party related to the project, Sound Transit will tender such claim to the Contractor through the established claim management process for handling and resolution. Upon receipt of a Third Party claim from Sound Transit, the Contractor shall acknowledge in writing to Sound Transit that:
- 1) The Contractor received and accepts Sound Transit's claim tender,
 - 2) The Contractor shall notify its Commercial General Liability insurance company and any other applicable insurance company (ies) of the claim as per Sound Transit insurance requirements that Sound Transit is named as Additional Insured, under the Commercial General Liability policy and as stipulated in the contract between Sound Transit and the contractor.
 - 3) The Contractor shall provide Sound Transit with copies of any/all Acknowledgements of Claim Receipts issued by its Commercial General Liability or other applicable insurance company(ies), The Contractor and its insurance company(ies) shall indemnify and defend Sound Transit, as an Additional Insured, against any/all claims related to the project.
 - 4) The Contractor's General Liability and other applicable insurance company(ies) will investigate and process the claim, provide a coverage determination, an objective disposition and claim resolution for either denial or settlement.
 - 5) The Contractor shall provide copies of any/all documentation related to a claim's disposition and resolution, such as, but not limited to, acknowledgements, settlement agreements, releases, claim denial letters, judgments, payments, and satisfaction of judgments.
- M. Contractor shall provide to Sound Transit quarterly status reports on all open and closed claims related to the project that implicates Sound Transit. The report shall include the assigned adjusters, policy numbers, claim numbers and at least the following:
- 1) A description of the claim handling activities during the quarter,
 - 2) Any changes to the assigned and/or investigating adjuster, and, if so, the name and contact information of the newly assigned adjuster(s),
 - 3) A description of the next steps in the claims adjusting process,
 - 4) A description of the disposition and resolution of any claim, and
 - 5) Copies of any pertinent documents, including, but not limited to, expert reports, reports on investigations, photographs, settlement agreements, releases, claim denial letters, judgments, payments, and satisfaction of judgments.

Contractor shall notify Sound Transit of their final resolution, or the applicable insurance company's(ies') final resolution, any/all claims related to the project, which Sound Transit Risk Management can review and document as a formal



notification from the contractor, or its insurance company(ies) that the claims has been fully dispositioned and closed.

END INSURANCE REQUIREMENTS



SECTION 04 – LIQUIDATED DAMAGES AMOUNTS

All references to damages hereunder shall mean Liquidated Damages:

- A. **Factory Acceptance Testing (FAT)** – Contractor’s failure to achieve Acceptance for all Factory Acceptance Testing (FAT) in the scope of work: \$2,000 in damages will be assessed per day for each day beyond the agreed upon deadline until Acceptance is achieved.
- B. Liquidated Damages associated with stations and fleet expansions:
 - 1. **BRT Stations II and Fleet Expansion I** – Contractor’s failure to achieve approval (per Scope of Work Section 2.3.2) of all equipment installation and commissioning for the second 40 BRT Stations and the first 75 buses in the multi-agency bus fleet expansion, \$7,000 in damages will be assessed per day for each day beyond the agreed upon deadline until approval is achieved.
 - 2. **East Link Extension** – Contractor’s failure to achieve approval (per Scope of Work Section 2.3.2) of all equipment installation and commissioning for East Link Extension: \$150,000 in damages will be assessed per day for each day beyond the agreed upon deadline until approval is achieved.
 - 3. **BRT Stations III and Fleet Expansion II** – Contractor’s achieve approval (per Scope of Work Section 2.3.2) of all equipment installation and commissioning for the next 100 BRT Stations and the next 15 buses in the multi-agency bus fleet expansion: \$8,500 in damages will be assessed per day for each day beyond the agreed upon deadline the next 100 BRT Stations and the next 15 buses in the multi-agency bus fleet expansion.
 - 4. **Lynnwood Link Extension** – Contractor’s achieve approval (per Scope of Work Section 2.3.2) of all equipment installation and commissioning for the Lynnwood Link Extension: \$62,500 in damages will be assessed per day for each day beyond the agreed upon deadline until approval is achieved.
 - 5. **Federal Way Link Extension and Redmond Link Extension** – Contractor’s achieve approval (per Scope of Work Section 2.3.2) of all equipment installation and commissioning for the Federal Way Link Extension and Redmond Link Extension: \$87,500 in damages will be assessed per day for each day beyond the agreed upon deadline until approval is achieved.
 - 6. **BRT Stations IV and Fleet Expansion III** – Contractor’s failure to achieve approval (per Scope of Work Section 2.3.2) of all equipment installation and commissioning for the next 90 BRT stations and next 65 buses in the multi-agency bus fleet expansion: \$8,000 in damages will be assessed per day for each day beyond the agreed upon deadline until approval is achieved.
- C. **Decommissioning of Legacy ORCA** – Contractor’s failure to provision the next gen ORCA back end system, software, and equipment installed and commissioned, and available for revenue service by the agreed upon deadline:
 - 1. Year 1: \$800,000 in damages will be accessed on the first day of each quarter year (January 1st, April 1st, July 1st, and October 1st) after the agreed upon FSA deadline, followed by;



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2. Year 2: \$963,000 in damages will be assessed on the first day of each quarter year (January 1st, April 1st, July 1st, and October 1st) that is one year after the agreed upon FSA deadline, until provisioning is complete.
- D. **Final System Acceptance (FSA)** – Contractor’s failure to achieve Final System Acceptance by the agreed upon deadline: \$5,725 in damages per day for each day beyond the agreed upon deadline, until Final System Acceptance is achieved.

END LIQUIDATED DAMAGES AMOUNT



SECTION 05 – LABOR COMPLIANCE MANUAL

ARTICLE 1 GENERAL

1.01 INSERTION OF PROVISIONS INTO SUBCONTRACTS

Contractor shall insert the provisions set forth in this Labor Compliance Manual (“Manual”) in all construction subcontracts of any tier.

1.02 DRUG FREE WORKPLACE

Contractor shall comply with applicable Drug Free Workplace requirements as set forth in 49 CFR Part 29, Subpart F, as modified by 41 U.S.C. 702, 49 U.S.C. 5331 and other applicable requirements.

In addition to other remedies available to Sound Transit, the Contractor's failure to comply with the requirements of this Section may render the Contractor subject to suspension of contract payment or termination for default pursuant to the General Conditions.

1.03 DISPUTES CONCERNING LABOR STANDARDS

Disputes arising out of terms and provisions of this Manual shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7, the Washington State Department of Labor and Industries, or other applicable procedures. Disputes within the meaning of this clause include disputes between the Contractor (or any of its Subcontractors) and Sound Transit, the U.S. Department of Labor, the Washington State Department of Labor and Industries, or the employees or their representatives.

ARTICLE 2 WAGES OF EMPLOYEES.

2.01 GENERAL

This Contract is subject to Washington Department of Labor & Industries (“L&I”) prevailing wage requirements and may be subject to the federal Department of Labor (“DOL”) prevailing wage requirements. In the event that both state and federal prevailing wages apply, the higher of the two prevailing wage rates will prevail. If a state prevailing rate for a particular classification is available but a federal rate is not available, the procedure outlined below for determination of a federal rate shall be followed. In the event that a federal prevailing rate for a particular classification is available but a state prevailing rate is not available, the procedure outlined below for determination of a state prevailing rate shall be followed. The Contractor shall comply with the requirements of both the state L&I and the federal DOL, for posting notices of applicable wages, submission of certified payrolls, record keeping and other applicable administrative requirements.

Overtime shall be paid in accordance with the highest wage amount determined under the Washington Department of Labor & Industries (“L&I”) prevailing wage requirements or the federal Department of Labor (“DOL”) prevailing wage requirements.

2.02.STATE PREVAILING WAGES.

All determinations of the state prevailing rate of wage shall be made by the Industrial Statistician of the Department of Labor and Industries of the State of Washington. The state schedule of prevailing wage rates applicable to this Contract are set forth in Section 06. If employing labor in a class not listed in such



schedule, the Contractor shall require the industrial statistician to determine the correct wage rate for that class and locality.

- A. Disputes. In case any dispute arises as to what are the state prevailing rates of wages for work of a similar nature and such dispute cannot be adjusted by the parties in interest, including labor and management representatives, the matter shall be referred for arbitration to the Director of the Department of Labor and Industries of the state of Washington and said Director's decision therein shall be final and conclusive and binding on all parties involved in the dispute. In the event of a dispute as to what the federal rates of wages are, the dispute shall be referred to the Administrator of the Wage and Hour Division, Employment Standards Administration whose decision shall be final and conclusive and binding on all parties involved in the dispute.
- B. Posting Notices. Except as provided otherwise in Chapter 39.12 RCW, the Contractor, each Subcontractor and other persons required to pay the prevailing rate of wage shall post in a location(s) readily visible to workers at the site: (1) a copy of the Statement Of Intent To Pay Prevailing Wages approved by the industrial statistician of the Department of Labor and Industries under RCW 39.12.040; and (2) the address and telephone number of the industrial statistician of the Department of Labor and Industries where a complaint or inquiry concerning prevailing wages may be made.
- C. Apprentices. Apprentice workers employed hereunder for whom an apprenticeship agreement has been registered and approved with the state apprenticeship council pursuant to Chapter 49.04 RCW shall be paid at least the prevailing hourly rate for an apprentice for that trade. Any worker for whom an apprenticeship agreement has not been registered and approved by the state apprenticeship council shall be considered to be a fully qualified journey worker, and, therefore, shall be paid at the prevailing hourly rate for journey workers.
- D. Required Documents. Pursuant to Chapter 39.12 RCW, the Contractor and each Subcontractor shall submit the following documents to Sound Transit:
 1. Before payment is made by Sound Transit, the Contractor and each Subcontractor shall submit a "Statement of Intent to Pay Prevailing Wages" that has been approved by the industrial statistician of the Department of Labor and Industries.
 2. With each request for payment, the Contractor shall submit a statement that prevailing wages have been paid in accordance with the "Statement of Intent to Pay Prevailing Wages" filed with Sound Transit.
 3. Following Final System Acceptance of the Work and before funds retained according to RCW 60.28.010 are released to the Contractor, the Contractor and each Subcontractor shall submit an "Affidavit of Wages Paid" that has been approved by the industrial statistician of the Department of Labor and Industries.
 4. Any fees charged by the Department of Labor and Industries for filing the "Statement of Intent to Pay Prevailing Wages" and the "Affidavit of Wages Paid" shall be paid by the Contractor and each Subcontractor, as applicable; if Sound Transit pays such fees for any



reason, then the Contractor shall be charged the amounts thereof, and shall remit the same to Sound Transit.

- E. Worker's Benefits. Contractor shall make all payments required for unemployment compensation under Title 50 RCW and for industrial insurance and medical aid required under Title 51 RCW. The Contractor shall also obey all federal, state and local laws, ordinances, and regulations that establish safety standards for the protection of employees. If any payment required by Title 50 or 51 is not made when due, Sound Transit may retain such payments from any money due the Contractor and apply the same into the appropriate fund. The Department of Labor and Industries will provide the Contractor with applicable industrial insurance and medical aid classification and premium rates. Sound Transit may withhold payment of any amounts needed to pay Industrial Insurance premiums until the Contractor has satisfied to Sound Transit that the Contractor has paid all applicable premiums it owes on the work performed.

2.03 FEDERAL PREVAILING WAGES

If this Contract is also subject to federal prevailing wages, Section 06 contains the wage determination decision of the Secretary of Labor.

- A. Minimum wages -- All laborers and mechanics employed or working upon the Site will be paid unconditionally and not less than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor, Section 06, and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis- Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of this Section. Also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its Subcontractors at the Site of the Work in a prominent and accessible place where it can be easily seen by the workers.
- B. The Resident Engineer will require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the Contract shall be classified in conformance with a wage determination. The Resident Engineer shall approve an additional classification and wage rate and fringe benefits only when the following criteria have



been met:

1. Except with respect to helpers as defined as 29 CFR 5.2(n)(4), the work to be performed by the classification requested is not performed by a classification in the wage determination; and
 2. The classification is utilized in the area by the construction industry; and
 3. The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and
 4. With respect to helpers as defined in 29 CFR 5.2(n)(4), such a classification prevails in the area in which the work is performed.
- C. If Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and Sound Transit agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by Sound Transit to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within thirty (30) Days of receipt and so advise Sound Transit or will notify Sound Transit within the thirty (30) Day period that additional time is necessary.
- D. In the event Contractor, the laborers or mechanics to be employed in the classification or their representatives, and Sound Transit do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), Sound Transit shall refer the questions, including the views of all interested parties and the recommendation of Sound Transit, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within thirty (30) Days of receipt and so advise Sound Transit or will notify Sound Transit within the thirty (30) Day period that additional time is necessary.
- E. The wage rate (including fringe benefits where appropriate) determined pursuant to these provisions, shall be paid to all workers performing work in the classification under this Contract from the first day on which work is performed in the classification.
1. Whenever the minimum wage rate prescribed in the Contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
 2. If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.



2.04 WITHHOLDING

Sound Transit shall, upon its own action or upon written request of an authorized representative of the federal Department of Labor or state Department of Labor and Industries, withhold or cause to be withheld from Contractor under this Contract or any other federal contract with the same prime Contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any Subcontractor the full amount of wages required by the Contract. In the event of failure to pay any laborer or mechanic, including any apprentice trainee, or helper, employed or working on the site of the work all or part of the wages required by the Contract, Sound Transit may, after written notice to Contractor, sponsor, applicant, or owner take such action as may be necessary to cause the suspension of any further payment, advance or guarantee of funds until such violations have ceased.

2.05 PAYROLLS AND BASIC RECORDS

A. Payrolls and basic records relating thereto shall be maintained by Contractor during the course of the Work and preserved for a period of three (3) years thereafter for all laborers and mechanics working at the Site of the Work.

1. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits, daily and weekly number of hours worked, deductions made, and actual wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid.
2. For Contracts that include federal prevailing wage requirements, whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.
3. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

B. Certified Payrolls.

1. If this Contract includes federal prevailing wage requirements, Contractor shall submit weekly, for each week in which any Contract Work is performed a copy of all certified payrolls to the Resident Engineer or his designee. In addition, Contractor shall submit



monthly reports in electronic format (MS Excel software) summarizing wages and bona fide fringe benefits paid to all laborers and mechanics employed or working upon the Site. Report data, report format and due date to be determined by Sound Transit. The certified payrolls submitted shall set out accurately and completely all of the information required to be maintained under Section 5.5(a)(3)(i) of Regulations, 29 CFR Part 5. This information may be submitted in any form to be approved by Sound Transit. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC 20402. Contractor is responsible for the submission of copies of payrolls by all subcontractors.

- a. Each certified payroll shall be accompanied by a "Statement of Compliance", signed by Contractor or Subcontractor, or his or her agent, who pays or supervises the payment of the persons employed under the Contract and shall certify the following:
 - (1) That the payroll for the payroll period contains the information required to be maintained under Section 5.5(a)(3)(i) of Regulations, 29 CFR Part 5 and that such information is correct and complete;
 - (2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the Contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3; and
 - (3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the Contract.
- b. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance".
- c. The falsification of any of the above certifications may subject Contractor or Subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.
- d. Contractor or Subcontractor shall make the records required under this Paragraph available for inspection, copying, or transcription by authorized representatives of Sound Transit, the U.S. Department of Transportation, the U.S. Department of Labor, or the Washington State Department of Labor and Industries and shall permit such representatives to interview employees during working hours on the job. If the Contractor or Subcontractor fails to submit the required records upon request or to make such records available, the FTA may,



after written notice to the Contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

2.06 APPRENTICE AND TRAINEES

A. Apprentices

Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to an individually registered in a bona fide apprenticeship program registered with a State Apprenticeship Agency recognized by the U. S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or if a person is employed in his or her first ninety (90) days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by a State Apprenticeship Agency to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or Subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division of the U.S. Department of Labor determines that a different practice prevails for the applicable apprentice classification, fringe benefits shall be paid in accordance with the determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

B. Trainees

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate



specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

C. Equal Employment Opportunity

The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

D. Compliance with Copeland Act Requirements

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this Contract.

E. Subcontracts

The Contractor or Subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal Transit Administration (FTA) may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The Contractor shall be responsible for the compliance by any Subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

F. Contract Termination: Debarment

A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the Contract, and for debarment as a Contractor and a Subcontractor as provided in 29 CFR 5.12.

G. Compliance with Davis-Bacon and Related Act Requirements

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this Contract.

H. Certification of Eligibility

5. By entering into this Contract, Contractor certifies that neither it (nor he or she) nor any



person or firm who has an interest in Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis Bacon Act or 29 CFR 5.12(a)(1).

6. No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
7. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC 1001.

I. Contract Work Hours and Safety Standards Act

1. Overtime Requirements. Neither the Contractor nor any Subcontractor shall require or permit any laborer or mechanic in any workweek in which he or she is employed on such Work to work in excess of forty (40) hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half (1 ½) times the basic rate of pay for all hours worked in excess of forty (40) hours in such workweek.
2. Violation; Liability For Unpaid Wages; Liquidated Damages. In the event of any violation of the clause set forth above, the Contractor and Subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth above, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard work week of forty (40) hours without payment of the overtime wages required by the clause set forth above.
3. Withholding For Unpaid Wages And Liquidated Damages. Sound Transit shall upon its own action, or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from any moneys payable on account of work performed by the Contractor or Subcontractor under any such contract or any other federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or Subcontractor for unpaid wages and liquidated damages as provided in the clause set forth above.
4. Subcontracts. The Contractor shall insert in any subcontracts the clauses set forth in this section and also a clause requiring the Subcontractors to include these clauses in any lower tier subcontracts. The Contractor shall be responsible for compliance by any Subcontractor or lower tier subcontractor with the clauses set forth in this section.

J. Material Suppliers

The requirements of this section do not apply to contracts or subcontracts for the purchase of supplies or materials or articles normally available on the open market.



ARTICLE 3 APPRENTICE UTILIZATION GOALS

For Contracts where the Engineer's estimate or the Bidder's Total Bid Price is \$1,000,000 or more, the Apprentice Utilization Goal applies and is set forth in Section 00 73 39 Diversity Program in this IFB. The Bidder, by submitting a Bid is thereby certifying that, if awarded the Contract, it shall make good faith efforts to locate, qualify and increase the skills of the region's labor force by using apprentices on the Contract and to comply with the apprenticeship provisions contained in Section 05 Labor Compliance Manual. During Bid evaluation, the apparent low Bidder shall verify its intent to utilize good faith efforts to comply with these provisions by executing the Certification of Intent Regarding Apprentice Utilization, contained in Section 00 45 00 Representations and Certifications in this IFB.

A. Contractor Shall Develop and Implement Apprentice Utilization Plan Subject to Sound Transit Approval

The Contractor shall use good faith efforts to utilize apprentices registered with the Washington State Apprenticeship and Training Council ("SAC") for a portion of the total Contract labor hours utilized on the Project. Prior to Notice of Award, the apparent low Bidder shall submit for Sound Transit approval an Apprentice Utilization Plan, if the Engineer's Estimate or if the Bidder's Total Bid Price is \$1,000,000 or more. The Plan shall outline how the apprenticeship goals will be met on the total contract labor hours. The Plan, on a form provided by Sound Transit in Section 00 45 00 Representations and Certifications, shall include the following information:

1. Total Contract labor hours include additional hours worked as a result of change orders.
2. Total Contract labor hours exclude hours worked by foremen, superintendents, supervisors, owners, and workers who are not subject to prevailing wage requirements. However, total Contract labor hours shall include the hours worked by supervisors, foremen, and superintendents if it is determined that they are subject to prevailing wage requirements pursuant to WAC 296-127-015.
3. The Contractor shall include the apprentice utilization requirements of this Section in all subcontracts executed for the Project, and ensure that all subcontractors working on the Project are notified of the apprentice utilization requirements. The Contractor is responsible for using good faith efforts to meet the apprentice utilization requirements of the Contract, including overall compliance on all Contract labor hours worked by subcontractors.

B. The Contractor shall make good faith efforts to:

1. Equally distribute the apprentice hours worked among each trade/craft and consistent with the apprentice utilization percentage requirement set forth herein.
2. Use reasonable and practicable means to recruit and hire apprentices to achieve the apprentice utilization goal accepted by Sound Transit.
3. Use reasonable and practicable means to recruit and hire minority and women apprentices for the Project so that of the apprentice utilization requirement percentage in this Section, the Contractor shall use women and people of color to



perform at least fifty percent (50%) of all first-year apprentice hours in all trades and to perform at least thirty-three percent (33%) of all apprentice hours worked.

4. Comply with the apprenticeship training standards for each trade/craft classification used on the Project, as set forth by the Washington State Department of Labor and Industries.
5. It is expected that an apprentice will normally begin training on the Project as soon as feasible after start of work, utilizing the skill involved and remain on the Project as long as training opportunities exist in the work classification or until the completion of the training program. It is not required that all apprentices be retained for the entire length of the Contract.

C. Changes to the Apprentice Utilization Requirement

1. If, during the term of the Contract, the Contractor determines that it will be unable to meet the apprentice utilization identified in the Apprentice Utilization Plan as accepted by Sound Transit, the Contractor may make a written request to Sound Transit, to modify the Plan. The request shall include documentation of the Contractor's affirmative efforts to use apprentices registered with the Washington State Apprenticeship and Training Council ("SAC"), including copies of correspondence between the Contractor and the SAC-approved apprentice programs, union locals, community stakeholders, and others. The documents must demonstrate that an adequate number of apprentices are not available to meet the apprentice utilization percentage.
2. Sound Transit shall evaluate the request, and if appropriate, shall authorize modification of the Apprentice Utilization Plan. If Sound Transit determines that a modification is not justified, Sound Transit shall communicate the decision in writing to the Contractor.

D. Apprentice Utilization Monitoring and Enforcement

1. Sound Transit or its designee shall verify the registration of each apprentice used on the Contract with the Washington State Apprenticeship and Training Council.
2. Sound Transit or its designee shall monitor the apprentice utilization data provided by the Contractor. In the event that the Contractor is deficient in the use of apprentices, Sound Transit or its designee will meet with the Contractor to discuss the reasons for the deficiency and help the Contractor develop a written plan for meeting the goals.
3. Sound Transit may make routine visits to the Site for the purpose of confirming the use of apprentices. The Contractor acknowledges that parties designated by Sound Transit may make visits to the Site for the purpose of confirming the use of apprentices. Said third party visitors will be required to abide by the Contractor's and Sound Transit's work rules and safety plan.

ARTICLE 4 NON-DISCRIMINATION, EEO, APPRENTICE AND CURRENT EMPLOYEE REPORTING REQUIREMENTS

- A. With each Request for Progress Payment, the Contractor shall submit to Sound Transit a Monthly EEO in electronic format to be provided by Sound Transit, for the Contractor and all Subcontractors. The monthly reports shall be completed by the Contractor and all Subcontractors



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- performing work on the Contract during the reporting period. The reports shall accompany the Contractor's Request for Progress Payment. A Request for Progress Payment that is not accompanied by the monthly reports will not be processed for payment until said monthly reports are received and approved by Sound Transit.
- B. With each Request for Progress Payment, the Contractor will also submit to Sound Transit a certification, in the form provided by Sound Transit, stating that they have no knowledge of allegations (whether as a written or oral statement from a worker or in the form of formal EEOC complaints, union grievances, or other complaints in any other administrative or legal form) regarding the violation of applicable Civil Rights and non-discrimination laws or policies against the Contractor or subcontractors performing work on the contract. If the Contractor has such knowledge, the Contractor shall provide a brief explanation of the alleged violation(s), and a description of any actions that have been or will be taken to address or remedy the alleged violation(s). The Contractor will provide Sound Transit access to all records pertaining to the alleged violation (s) and reasonable access to interview employees or workers that may have information related thereto.
- C. Within five (5) working days of receiving notice of any complaint that has been filed against the Contractor regarding allegations of discrimination on this contract by any federal, state or local civil rights enforcement agency, the Contractor shall provide a copy of the complaint to Sound Transit. The Contractor will provide to Sound Transit access to all records pertaining to the complaint.
- D. The Contractor shall be responsible for reporting EEO data required by Sound Transit beginning with the first day of work for each apprentice. The Contractor's first submittals are due at the end of the first month after the Contract start date specified in the Notice to Proceed, and at monthly intervals thereafter as specified above. Subcontractor submittals are due at the end of the month after commencement of their work and monthly thereafter, as specified above.
- E. The Contractor shall report the following information on journey level employees:
- Labor hours for reporting period by ethnicity/gender, for each trade/craft.
 - Total journey level labor hours by ethnicity/gender, for each trade/craft.
 - Total labor hours and number of journey level employees for reporting period by ethnicity/gender.
 - Total journey level labor hours and number of employees to-date.
 - Summary information as noted on the reporting form.
- F. On a weekly basis, the Contractor shall submit to Sound Transit a Current Employee Report which shall be completed by the Contractor and all Subcontractors of all employees performing work on the Contract for the previous week. In addition, the Contractor will be required to maintain and provide on the report racial and gender data regarding the hiring and termination of craft workers, including the number of hours worked before termination, and upon request, provide to Sound Transit the documentation supporting the reason the worker was terminated. If the work is



performed in shifts, the Contractor will also report racial and gender data regarding the staffing of each shift. A sample of this form is included in Section 00500 of this IFB and may be provided in an electronic format by Sound Transit.

- G. The Contractor shall submit such other information as may be requested by Sound Transit to verify compliance with the EEO requirements of the Contract. Sound Transit reserves the right to add, delete, or change as necessary the information required by the Contractor on the Monthly EEO and Apprentice Utilization Report form.

ARTICLE 5 SUBSTANCE ABUSE PREVENTION PROGRAM

- A. Unauthorized use, possession or sale of controlled substances or alcohol on the Project is prohibited. Persons who violate this rule or who are convicted for selling, using, or possessing controlled substances off the job will not be permitted to work on the Project.
- B. Applicants for Project employment will be subject to pre-employment controlled substance, alcohol and adulterant testing. Thereafter, employees will be subject to reasonable cause, post-accident, random and return-to-work testing for the presence of controlled substances, alcohol or adulterants in their systems.
- C. Employees who report for work with alcohol, adulterants or unauthorized controlled substances in their system will not be permitted to remain on the Project. Employees who violate the substance abuse policy and applicants who fail the pre-employment testing, will be denied employment and will not be eligible for reassignment to any Contractor on the Project until a period of not less than ninety (90) calendar days has passed. Such employees/applicants shall be subject to pre-employment, random and periodic controlled substance, adulterant or alcohol testing thereafter at the request of Sound Transit for up to one year. The program will apply to all Contractor craft personnel, union and non-union, at all construction sites.
- D. The Contractor shall assure a drug-free workplace by implementation of a substance abuse program that complies with all applicable federal and state laws. Documentation of the Contractor's program and evidence of testing shall be maintained by the Contractor and provided to Sound Transit for review and inspection upon request.

END LABOR COMPLIANCE MANUAL



SECTION 06 – PREVAILING WAGE RATES

Washington State prevailing wage rates can be found at: <http://www.lni.wa.gov/TradesLicensing/PrevWage/WageRates/>.

Davis-Bacon Act Wage determinations are available at <http://www.wdol.gov/dba.aspx>, and the current rates are included in the following pages.

Questions may be directed to the local Seattle office:

Seattle District Office
US Dept. of Labor Wage & Hour Division
300 Fifth Avenue, Suite 1130
Seattle, WA 98104

Phone:
(206) 398-8039
1-866-4-USWAGE (1-866-487-9243)

General Decision Number: WA170036 07/21/2017 WA36

Superseded General Decision Number: WA20160036

State: Washington

Construction Type: Building

County: King County in Washington.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.20 for calendar year 2017 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.20 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2017. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/06/2017
1	01/13/2017
2	02/03/2017
3	02/17/2017
4	03/03/2017
5	03/10/2017
6	05/19/2017
7	06/02/2017
8	06/16/2017
9	07/07/2017
10	07/21/2017

ASBE0007-002 06/01/2017

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR.....	\$ 32.86	15.37

BRWA0001-011 06/01/2016

	Rates	Fringes
Bricklayers, Caulkers.....	\$ 38.24	15.57

CARP0770-020 06/01/2016

	Rates	Fringes
CARPENTER (Acoustical Installation).....	\$ 40.92	14.59
CARPENTER (Including Formwork, Drywall Hanging, Cabinet Installation; Insulator-Batt and Metal Stud Installation).....	\$ 40.92	14.59

MILLWRIGHT.....	\$ 42.42	14.59
PILEDRIVERMAN.....	\$ 41.17	14.59

(HOURLY ZONE PAY: WESTERN AND CENTRAL WASHINGTON - ALL CLASSIFICATIONS EXCEPT MILLWRIGHTS AND PILEDRIVERS)

Hourly Zone Pay shall be paid on jobs located outside of the free zone computed from the city center of the following listed cities:

Seattle	Olympia	Bellingham
Auburn	Bremerton	Anacortes
Renton	Shelton	Yakima
Aberdeen-Hoquiam	Tacoma	Wenatchee
Ellensburg	Everett	Port Angeles
Centralia	Mount Vernon	Sunnyside
Chelan	Pt. Townsend	

Zone Pay:

0 -25 radius miles	Free
26-35 radius miles	\$1.00/hour
36-45 radius miles	\$1.15/hour
46-55 radius miles	\$1.35/hour
Over 55 radius miles	\$1.55/hour

(HOURLY ZONE PAY: WESTERN AND CENTRAL WASHINGTON - MILLWRIGHT AND PILEDRIVER ONLY)

Hourly Zone Pay shall be computed from Seattle Union Hall, Tacoma City center, and Everett City center

Zone Pay:

0 -25 radius miles	Free
26-45 radius miles	\$.70/hour
Over 45 radius miles	\$1.50/hour

ELEC0046-006 02/06/2017

	Rates	Fringes
ELECTRICIAN.....	\$ 47.56	3%+19.31

ELEC0046-007 02/06/2017

	Rates	Fringes
ELECTRICIAN (Alarm Installation Only).....	\$ 31.67	3%+12.45
ELECTRICIAN (Low Voltage Wiring Only).....	\$ 31.67	3%+12.45

ELEV0019-005 01/01/2017

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 50.82	31.585

FOOTNOTE:

- a. Employer contributes 8% of the basic hourly rate for over 5 year's service and 6% of the basic hourly rate for 6 months to 5 years' of service as vacation paid credit.
- b. Eight paid holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Veteran's Day; Thanksgiving

Day; Friday after Thanksgiving and Christmas Day

ENGI0302-019 06/01/2017

	Rates	Fringes
Power equipment operators:		
Group 1A.....	\$ 41.90	19.20
Group 1AA.....	\$ 42.52	19.20
Group 1AAA.....	\$ 43.13	19.20
Group 1.....	\$ 41.29	19.20
Group 2.....	\$ 40.76	19.20
Group 3.....	\$ 40.29	19.20
Group 4.....	\$ 37.70	19.20

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1AAA - Cranes-over 300 tons, or 300 ft of boom
(including jib with attachments)

GROUP 1AA - Cranes 200 to 300 tons, or 250 ft of boom
(including jib with attachments); Excavator/Trackhoe: Over
90 metric tons

GROUP 1A - Cranes, 100 tons thru 199 tons, or 150 ft of boom
(including jib with attachments); Loaders-overhead, 8 yards
and over; excavator/Trackhoe: over 50 metric tons to 90
metric tons

GROUP 1 - Cranes 45 tons thru 99 tons, under 150 ft of boom
(including jib with attachments); Excavator/Trackhoe: over
30 metric tons to 50 metric tons; Loader- overhead 6 yards
to, but not including 8 yards; Dozer D-10; Screedman;
Scrapers: 45 yards and over; Grader/Blade

GROUP 2 - Cranes, 20 tons thru 44 tons with attachments;
Drilling machine; Excavator/Trackhoe: 15 to 30 metric tons;
Horizontal/directional drill operator; Loaders-overhead
under 6 yards; Crane Oiler-100 Tons and Over; Compactor;
Scraper: under 45 tons

GROUP 3 - Cranes-thru 19 tons with attachments; Dozers-D-9
and under; Motor patrol grader-nonfinishing; Roller-Plant
Mix; Crane Oiler under 100 tons; Excavator/Trackhoe: under
15 metric tons; Forklift: 3000 lbs and over with
attachments; Service Oiler; Concrete Pump; Outside Hoist
(Elevators and Manlifts); Pump Grout

GROUP 4 - Roller-other than plant mix; Forklift: under 3000
lbs with attachments; Bobcat; Rigger/Bellman

IRON0086-010 07/01/2016

	Rates	Fringes
IRONWORKER (Reinforcing, Structural and Ornamental).....	\$ 40.52	24.71

LAB00242-002 06/01/2017

ZONE 1:

Rates	Fringes
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LABORER

GROUP 2.....	\$ 28.45	10.99
GROUP 3.....	\$ 35.54	10.99
GROUP 4.....	\$ 36.41	10.99
GROUP 5.....	\$ 36.99	10.99

ZONE DIFFERENTIAL (ADD TO ZONE 1 RATES):

ZONE 2 - \$1.00

ZONE 3 - \$1.30

BASE POINTS: BELLINGHAM, MT. VERNON, EVERETT, SEATTLE, KENT,
TACOMA, OLYMPIA, CENTRALIA, ABERDEEN, SHELTON, PT.
TOWNSEND, PT. ANGELES, AND BREMERTON

ZONE 1 - Projects within 25 radius miles of the respective
city hall

ZONE 2 - More than 25 but less than 45 radius miles from the
respective city hall

ZONE 3 - More than 45 radius miles from the respective city
hall

LABORERS CLASSIFICATIONS

GROUP 2: Flagman

GROUP 3: General Laborer; Mason Tender-Cement/Concrete;
Chipping Gun (under 30 lbs.); Form Stripping; Roof Tearoff

GROUP 4: Chipping Gun (over 30 lbs.); Concrete Saw Operator;
Grade Checker; Gunite; Pipe Layer; Vibrating Plate

GROUP 5: Mason Tender-Brick

* PAIN0005-029 07/01/2017

	Rates	Fringes
DRYWALL FINISHER/TAPER.....	\$ 39.50	17.43

PAIN0005-030 07/01/2013

	Rates	Fringes
Painters:		
Parking Lot and Highway		
Striping Only.....	\$ 28.00	14.33

* PAIN0005-031 07/01/2017

	Rates	Fringes
PAINTER (Including Brush, Roller, Spray and Prep Work).....	\$ 29.75	11.58

* PAIN0188-005 07/01/2017

	Rates	Fringes
GLAZIER.....	\$ 43.24	17.16

* PAIN1238-002 07/01/2017

Rates	Fringes
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SOFT FLOOR LAYER (Including Vinyl and Carpet).....\$ 30.82 16.56

PLAS0528-002 06/01/2017

Rates Fringes

PLASTERER.....\$ 38.10 16.34

PLAS0528-004 06/01/2017

Rates Fringes

CEMENT MASON/CONCRETE FINISHER...\$ 40.52 16.54

PLUM0032-009 01/01/2017

Rates Fringes

PIPEFITTER.....\$ 53.06 23.03
 PLUMBER (Including HVAC Pipe Installation).....\$ 52.81 22.28
 REFRIGERATION MECHANIC.....\$ 52.22 22.79

ROOF0054-008 01/01/2017

Rates Fringes

ROOFER (Includes Roof Tear Off, Waterproofing, and Installation of Metal Roofs).....\$ 33.32 14.17

SFWA0699-006 07/01/2017

Rates Fringes

SPRINKLER FITTER (Fire Sprinklers).....\$ 48.47 25.52

SHEE0066-023 06/01/2016

Rates Fringes

Sheet Metal Worker (Including HVAC Duct Work and Installation of HVAC Systems)....\$ 48.17 25.52

* TEAM0174-005 01/01/2017

Rates Fringes

Truck drivers:

ZONE A:

GROUP 2:.....\$ 34.13 18.57

ZONE B (25-45 miles from center of listed cities*): Add \$.70 per hour to Zone A rates.

ZONE C (over 45 miles from centr of listed cities*): Add \$1.00 per hour to Zone A rates.

*Zone pay will be calculated from the city center of the following listed cities:

BELLINGHAM CENTRALIA RAYMOND OLYMPIA

EVERETT	SHELTON	ANACORTES	BELLEVUE
SEATTLE	PORT ANGELES	MT. VERNON	KENT
TACOMA	PORT TOWNSEND	ABERDEEN	BREMERTON

TRUCK DRIVERS CLASSIFICATIONS

GROUP 2 - Semi-Trailer Truck

HAZMAT PROJECTS

Anyone working on a HAZMAT job, where HAZMAT certification is required, shall be compensated as a premium, in addition to the classification working in as follows:

LEVEL C: +\$.25 per hour - This level uses an air purifying respirator or additional protective clothing.

LEVEL B: +\$.50 per hour - Uses same respirator protection as Level A. Supplied air line is provided in conjunction with a chemical "splash suit."

LEVEL A: +\$.75 per hour - This level utilizes a fully-encapsulated suit with a self-contained breathing apparatus or a supplied air line.

SUWA2009-024 05/22/2009

	Rates	Fringes
LABORER: Driller.....	\$ 17.17	5.36
LABORER: Irrigation.....	\$ 11.58	0.00
LABORER: Landscape.....	\$ 9.73	0.00
LABORER: Overhead Door Installation.....	\$ 22.31	3.44
OPERATOR: Backhoe.....	\$ 29.95	7.20
OPERATOR: Mechanic.....	\$ 24.33	4.33
ROOFER: Metal Roof.....	\$ 24.30	4.05
TILE SETTER.....	\$ 18.72	3.35
TRUCK DRIVER: Dump Truck.....	\$ 27.43	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is

like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative

Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION



SECTION 07 – SOFTWARE LICENSE AND MAINTENANCE AGREEMENTS

The Software License and Maintenance Agreements listed below are hereby attached to this Agreement and hereby incorporated by reference:

- Attachment A – INIT Software End-User License Agreement
- Attachment B – INIT Software Maintenance Agreement
- Attachment C – Oracle Enterprise Edition with Advanced Security & Maintenance Agreement
- Attachment D – Shareplex Subscription Agreement including Professional Setup Services
- Attachment E – IBM Maas 360 Mobile Device Management License Agreement



Attachment A – INIT Software End-User License Agreement



ATTACHMENT A END-USER LICENSE AGREEMENT

This End-User License Agreement ("EULA" or "License Agreement") is effective as of the ____ day of ____, 2018 ("Effective Date") by and between INIT Innovations in Transportation, Inc., a Virginia corporation located at 424 Network Station, Chesapeake, Virginia 23320 ("INIT" or "Licensor"), and Central Puget Sound Regional Transit Authority dba Sound Transit.

RECITALS

A. INIT represents that it possesses the right to license certain computer software programs that support the access, delivery and management of the Software System (a term used for the ORCA system software, written programs or procedures, or rules, and associated documentation designed to perform an intended purpose and identified in the contract documents and requirements. This system may be made up of multiple software programs that are developed by INIT and licensed to Sound Transit, and/or third party software applications) across multiple platforms.

B. Licensee desires to license the INIT Software as set forth and including any other INIT software on Exhibit A hereto (collectively, the "INIT Software"), from INIT and INIT desires to license the INIT Software to Licensee, subject to the terms and conditions set forth below.

C. This License Agreement is granted in connection with the Purchase Contract. This License Agreement survives any termination or expiration of the Purchase Contract.

TERMS AND CONDITIONS

NOW, THEREFORE, in consideration of the premises and the mutual covenants and agreements set forth below and other good and valuable considerations, the receipt and sufficiency of which are hereby acknowledged, the parties hereto do hereby covenant and agree as follows:

1. DEFINITIONS. The following definitions apply in this EULA:

- 1.1.** "Licensee" means Sound Transit and all of the ORCA Partner Agencies as defined in the Purchase Contract.
- 1.2.** "Documentation" means any written documentation that is supplied by INIT.
- 1.3.** "INIT Software" shall have the meaning ascribed to that term in Exhibit A. The term INIT Software shall also include, without limitation, any and all corrections, bug fixes, enhancements, upgrades and updates or other modifications that INIT may hereafter provide to Licensee.
- 1.4.** "Licensed Products" means the Documentation and the INIT Software described in Exhibit A, collectively.
- 1.5.** "Price Sheet" means Section 08 of the Purchase Contract.
- 1.6.** "Purchase Contract" means that Sound Transit Goods and Professional Services Contract No. RTA/RP 0119-17 dated the ____ day of ____, 2018.
- 1.7.** "Final System Acceptance" shall mean written notice from Licensee acknowledging that the Licensor has fulfilled all of its obligations under the Purchase Contract and that Licensee has accepted the Work.

2. OWNERSHIP AND RIGHTS IN SOFTWARE. Nothing in this License Agreement shall transfer ownership of any intellectual property or other rights in the INIT Software to Licensee. Licensee acquires only the limited license rights expressly stated herein.



ATTACHMENT A END-USER LICENSE AGREEMENT

3. LICENSE GRANTS.

- 3.1 INIT Software.** INIT hereby grants to Licensee an unlimited, non-transferable, non-exclusive, perpetual, royalty-free, ORCA-specific, irrevocable (except as stated in Section 4.7 hereof), license to, use the INIT Software, including the use of associated application programming interfaces (APIs). The license described herein is not limited to any number of seats, users, or hardware/equipment installations, or any other limitation on the use of the Licensed Products other than what is specifically contemplated by this License Agreement.
- 3.2 Documentation.** INIT hereby grants to Licensee an unlimited, non-transferable, non-exclusive, perpetual, royalty-free, ORCA-specific license to use, copy, adapt, modify, enhance and create derivative works from the Documentation solely in order to support Licensee's use of INIT Software, including the right to: (a) reproduce, at no additional cost, as many copies of the Documentation as Licensee requires to support such use, (b) translate the Documentation into other languages as required for Licensee's use provided that INIT shall have no responsibility in respect of any such translation not affected by it, (c) reproduce, at no additional cost, any worn or damaged copies of the Documentation, (d) reproduce in hard copy form from the electronic format any excerpts that Licensee requires to prepare internal manuals for staff and personnel use, and (e) reproduce and maintain additional copies of the Documentation as Licensee may require to comply with applicable laws and its data retention policies.
- 3.3 Other Licensed Uses.** In any event, at no additional cost, Licensee is entitled to make and keep additional archival copies of the INIT Software as Licensee may require to comply with applicable laws and its data retention policies.
- 3.4 Other Interfaces.** Licensee is entitled to develop interfaces between the INIT Software and any of Licensee's other software, including licensed software; provided that INIT shall have no responsibility of any nature in respect of any such interfaces not developed by it, including but not limited to failure or substandard performance of the INIT Software subject to interface. INIT shall not be required to provide Licensee with any assistance in the development of such interfaces, other than professional services required as part of the Purchase Agreement.
- 3.5 Clarifications.** For further clarity, (a) the licenses granted in Section 3.1 through 3.4 above include, without limitation, the right for Licensee to install, view, and operate the INIT Software, and (b) the parties acknowledge and agree that Licensee's rights in the Licensed Products may be exercised by any personnel (whether an employee or intern) or an independent contractor of Licensee who has agreed to the same Confidentiality restrictions as Licensee. Other than as set forth herein Licensee shall make no attempt to reverse compile, disassemble, or otherwise reverse engineer all or any part of the INIT Software. Except as provided herein or in the terms of the Purchase Contract, Licensee shall not copy, reproduce, modify, adapt or translate the Licensed Products, without the advance express written consent of INIT. Unless permitted by law or a court order, Licensee, its staff, contractors and subcontractors and consultants shall not permit disclosure of, access to, or use of the INIT Software by any third party unless authorized in writing in advance by INIT.

4. RESTRICTIONS AND LIMITATIONS ON USE.

- 4.1 Archival and Backup Copies.** Licensee is authorized to make no more than two additional copies of the INIT Software for archival or backup purposes.



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- 4.2 Modification of Software.** Modifications to the INIT Software are prohibited and such modifications will void any warranty or maintenance agreement covering the INIT Software.
- 4.3 Reverse Engineering Prohibited.** Reverse engineering, decompilation, disassembly, or other similar techniques are prohibited by this EULA. This EULA does not authorize use nor grant any rights in the source code for the INIT Software.
- 4.4 Rental of Software Prohibited.** Licensee may not rent, lease, distribute, transfer, or time share the Licensed Products.
- 4.5 Assignment and Transfer of License Rights.** Licensee may not assign or transfer the Licensed Products or this EULA to any third person or organization except with the prior written permission of INIT, which shall not be unreasonably withheld or delayed. Upon thirty (30) days prior notice, and with Licensee's consent, INIT may assign this Agreement and rights for benefit of Licensee.
- 4.6 No Other Rights in Copyrights, Trademarks, or Patents Granted.** Except as expressly granted herein, Licensee acquires no other rights in any copyright, patent, trademark, or trade secret incorporated in or applicable to the Licensed Products.
- 4.7 Term and Termination.** The term of this EULA shall commence on the Effective Date and continue perpetually thereafter unless terminated as provided below.
- 4.8 Dispute Resolution**
- 4.8.1** Licensee and the Licensor agree to use their best efforts to resolve disputes arising out of or related to this License Agreement using good faith negotiations and the principles of Project Partnering by developing and implementing a Dispute Escalation Process that provides for the timely resolution of disputes as close to their point of origin as possible. It is agreed that the foregoing will not negate any of the License Agreement requirements for providing timely notice and the timely submission of documents that are required elsewhere in the License Agreement.
- 4.8.2** In the event the parties are unable to resolve their dispute, if a Dispute Review Board (DRB) has been established for this License Agreement and if the claim is over \$250,000, the dispute shall be referred to a DRB as a condition precedent to mediation. If the claim is \$250,000 or less or, if no DRB has been established for this License Agreement or, if the dispute remains unresolved after a hearing by and recommendation from the DRB, the dispute shall be referred to mediation as a condition precedent to the commencement of a civil action. Anything to the contrary herein notwithstanding, either party shall be entitled to commence an action for equitable relief in any court of competent jurisdiction in order to prevent irreparable harm to the applicant.
- 4.8.3** For mediation, a mediator shall be chosen that is agreeable to all parties involved in the dispute and such agreement shall not be unreasonably withheld. All statements made by parties involved in the dispute to the mediator shall remain confidential and shall not be disclosed by the mediator in any litigation or other claim proceedings. All parties hereby agree to such terms and signature of the License Agreement provides written confirmation of these terms.
- 4.8.4** UPON THE END OF THE PURCHASE CONTRACT, THE FOLLOWING SHALL APPLY TO THE EXCLUSION OF THE FOREGOING:
- In the event Licensee breaches a material term of this EULA and fails to cure such breach within ninety (90) days after the receipt of written notice thereof from INIT specifying such breach (such ninety (90) day period shall be referred to herein as the "Cure Period"), then INIT may terminate this EULA by giving Licensee written



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notice thereof within thirty (30) days after the end of the Cure Period, and, in such event, this EULA shall terminate ninety (90) days after Licensee's receipt of such notice. Licensee may terminate this EULA at any time by giving written notice thereof to INIT and, in such event, this EULA shall terminate on the date specified in such notice. Upon termination of this EULA, Licensee agrees to, as directed by INIT, destroy or return to INIT all copies of the Licensed Products, except that Licensee may keep one copy for archival purposes. Licensee shall certify to INIT in writing its compliance with the return or destruction provisions.

4.9 Media. Subject only to Licensees' complying with any request for information according to any statutory requirements that apply to Licensee, neither party shall communicate with representatives of the general or technical press, radio, television, or other communication media regarding the work under this License Agreement without the prior written consent of the other party. Neither party nor any of its personnel shall publish or reproduce or arrange press releases regarding the other party without the prior written consent of the other party upon such terms as may be agreed.

4.10 Public Disclosure. The Licensor acknowledges that the Licensee is subject to Chapter 42.56 RCW. Licensee acknowledges that the INIT Software, the Documentation are owned by INIT or INIT has the rights of use in them. Licensee is obliged to maintain the Trade Secrets in confidence and not to disclose the Trade Secrets to any third party, without INIT's prior written consent, which shall not be unreasonably withheld, or as required by law. The Licensor and the Licensee agree that the following process shall control any request received by the Licensee for access to or a copy of the INIT Software or Documentation. These obligations of confidentiality shall survive termination of the EULA.

Pursuant to Chapter 42.56 RCW, documents related to this EULA shall be considered public records and with limited exceptions will be available for inspection and copying by the public. INIT must specifically designate and clearly label as "CONFIDENTIAL" any and all materials or portions thereof they deem to contain trade secrets or other proprietary information, which is exempt from public inspection and copying. INIT must provide the legal basis for the exemption to Licensee upon request. If a document does not clearly identify the "CONFIDENTIAL" portions, Licensee will not notify the Contractor that the documents will be made available for inspection. If a request is made for disclosure of material or any portion marked "CONFIDENTIAL," Licensee will determine whether the material should be made available under the law. If Licensee determines that the material is not exempt and may be disclosed, Licensee will notify INIT of the request and allow the INIT 10 working days to take appropriate action pursuant to RCW 42.56.540. If INIT fails or neglects to take such action within said period, Licensee may release the portions of the documents deemed subject to disclosure. To the extent that Licensee withholds from disclosure all or any portion of INIT's documents at INIT's request, Licensee shall indemnify, defend and hold harmless Licensee from all damages, penalties, attorneys' fees and costs Licensee incurs related to withholding information from public disclosure. By executing this EULA, INIT consents to the procedure outlined in this paragraph and shall have no claim against Licensee by reason of actions taken under this procedure.

5 LICENSOR'S RIGHT TO AUDIT LICENSE RESTRICTIONS. Upon Licensor's reasonable belief that Licensee may not be in compliance with the provisions of this EULA, Licensee agrees to allow INIT access to the Licensed Products, upon reasonable notice and during normal business hours, to verify compliance with the provisions of the EULA so long as INIT does not unreasonably interfere with Licensee's daily operations. Licensee shall make



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available the necessary operational records, database equipment, employees and facilities required by INIT to perform its audit.

- 6 PROTECTION OF SOFTWARE AND DOCUMENTATION.** Licensee agrees to use commercially reasonable measures to protect the Licensed Products, including documentation, from unauthorized use, copying, or distribution.
- 7 MAINTENANCE.** INIT provides no maintenance as part of this EULA. Maintenance is provided under the terms of the Purchase Contract or by separate agreements with INIT.
- 8 EXPORT COMPLIANCE.** The export of INIT Software may controlled by federal law. You agree that you will not: (a) export or re-export, directly or indirectly, any software and/or technical data (as defined by the U.S. Export Administration Regulations) provided by INIT or (b) disclose such software/technical data for use in, or export or re-export directly or indirectly, any direct product of such technical data, including Software, to any destination to which such export or re-export is restricted or prohibited by United States, without obtaining prior authorization from the U.S. Department of Commerce and other competent government entities to the extent required by applicable laws and/or regulations.
- 9 US GOVERNMENT RESTRICTED RIGHTS.** This EULA provides only RESTRICTED RIGHTS in the Licensed Products. Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subparagraph FAR section 52.227-19 (48 CFR 52.227-19) (December 2007) and the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013, as applicable.
- 10 LIMITED WARRANTIES.**
 - 10.1 Authority.** INIT represents and warrants that (a) INIT is a corporation duly organized, validly existing and in good standing under and in accordance with the laws of the Commonwealth of Virginia, (b) INIT has full legal power and authority to enter into this Agreement, and (c) the person who executes and delivers this Agreement for INIT and on its behalf is duly authorized and has all requisite authority to do the same.
 - 10.2 No Infringement.** INIT represents and warrants that (a) Licensee shall have quiet enjoyment of the Licensed Products and other materials delivered hereunder and that Licensee's use of, and/or other authorized exercise of its rights in, the Licensed Products and/or such other materials shall not infringe or otherwise violate any patent, copyright, trademark, trade secret, nondisclosure, and/or any other intellectual property right of any third party, (b) no third party has made any claim of infringement of intellectual property rights with respect to the Licensed Products, (c) INIT has not previously and will not hereafter grant any rights to any third party that are in conflict with any of the rights granted herein, (d) any services performed pursuant to this EULA (or otherwise in respect of the Licensed Products) by INIT will not infringe or otherwise violate any patent, copyright, trademark, trade secret, nondisclosure, right of publicity, right of privacy and/or any other intellectual property right of any third party.
 - 10.3 No Viruses.** INIT represents and warrants that the INIT Software does not contain, and will not contain, any feature which could in any way impair the operation of such software (and/or any of Licensee's other software and/or hardware) including, without limitation, (a) software locks, license keys, drop dead devices, back doors, time bombs, or other software routines which may disable a computer program automatically with the passage of time or under the positive control of a person other than Licensee, or (b) any form of virus, a Trojan horse, worm or other software routines or hardware components which may (i) permit unauthorized access, (ii) disable, erase, or otherwise harm software, hardware, or data, or (iii) remove, provide access to or disclose any



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data or other personal information, health information or financial information of any person.

- 10.4 No Security Interests.** INIT represents and warrants that the INIT Software has not been pledged, in whole or in part, as security for any loans or other obligations and there are otherwise no security interests, liens or other types of encumbrances on the INIT Software.

- 11 LIMITATION AND EXCLUSION OF WARRANTIES.** EXCEPT AS EXPRESSLY SET FORTH IN THIS LICENSE AGREEMENT AND DURING THE TERM OF THE PURCHASE CONTRACT AS EXPRESSLY SET FORTH THEREIN, INIT MAKES NO WARRANTIES, REPRESENTATIONS, OR PROMISES. EXCEPT AS EXPRESSLY SET FORTH IN THIS LICENSE AGREEMENT AND DURING THE TERM OF THE PURCHASE CONTRACT AS EXPRESSLY SET FORTH THEREIN, INIT EXPRESSLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY, TITLE, AND SUITABILITY FOR ANY SPECIFIC PURPOSE, OR SYSTEM. INIT DOES NOT WARRANT THAT THE LICENSED PRODUCTS WILL PERFORM WITHOUT INTERRUPTION OR ERROR, AND DOES NOT WARRANT THAT THEY WILL SATISFY ANY PARTICULAR REQUIREMENTS NOT SET OUT IN THE PURCHASE CONTRACT REQUIREMENTS.

- 12 APPLICABLE LAW/VENUE/JURISDICTION.** This License Agreement shall be governed by, and construed in accordance with, the laws of the State of Washington, without regard to any applicable conflict of laws rules. The exclusive venue and jurisdiction shall lie in the federal and state courts of King County, Washington.

13 LIMITATION OF LIABILITY.

- 13.1** DURING THE TERM OF THE PURCHASE CONTRACT, THE FOLLOWING LIMITATION OF LIABILITY SHALL APPLY:

ANYTHING IN THE PURCHASE AGREEMENT OR THIS EULA TO THE CONTRARY NOTWITHSTANDING, THE LIABILITY OF EITHER PARTY SHALL BE LIMITED TO TWO TIMES THE CONTRACT PRICE SET FORTH IN THE PURCHASE AGREEMENT. UNDER NO CIRCUMSTANCES SHALL EITHER PARTY BE LIABLE TO THE OTHER PARTY FOR CONSEQUENTIAL, PUNITIVE OR INCIDENTAL DAMAGES, INCLUDING WITHOUT LIMITATION, PRODUCTION FAILURE, LOSS OF UTILIZATION, LOSS OF ORDERS, LOSS OF PROFIT, AND ALL OTHER SUCH INDIRECT DAMAGES.

- 13.2** UPON EXPIRATION OF THE TERM OF THE PURCHASE CONTRACT, THE FOLLOWING LIMITATION OF LIABILITY SHALL APPLY:

EXCEPT FOR (A) DAMAGES RESULTING FROM A BREACH BY EITHER PARTY OF THEIR RESPECTIVE OBLIGATIONS UNDER SECTION 15 BELOW, (B) INIT'S OBLIGATIONS UNDER SECTION 14 BELOW, AND/OR (C) A PARTY'S WILLFUL MISCONDUCT, OR GROSS NEGLIGENCE NEITHER PARTY SHALL BE LIABLE TO THE OTHER PARTY FOR ANY INCIDENTAL, CONSEQUENTIAL, OR INDIRECT DAMAGES OR LOSS OF PROFITS OR PUNITIVE DAMAGES ARISING OUT OF THIS LICENSE AGREEMENT. TO THE MAXIMUM EXTENT ALLOWABLE BY LAW AND EXCEPT FOR (A) DAMAGES RESULTING FROM A BREACH BY INIT OF ITS OBLIGATIONS UNDER SECTION 15 BELOW, (B) INIT'S OBLIGATIONS UNDER SECTION 14 BELOW, AND/OR (C) INIT'S WILLFUL MISCONDUCT, OR GROSS NEGLIGENCE, INIT'S TOTAL LIABILITY ARISING FROM OR RELATING TO THIS LICENSE AGREEMENT OR THE SALE OR DISTRIBUTION OF THE LICENSED



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PRODUCTS, WHETHER IN CONTRACT, TORT OR ANY OTHER GROUNDS, IS LIMITED TO \$5M USD.

14 INDEMNIFICATION. Notwithstanding anything herein to the contrary, INIT shall, at its sole cost and expense, indemnify, defend and hold harmless Licensee and its respective or collective directors, officers, employees, contractors and agents (collectively, the "Indemnified Parties"), and each of them, from and against any and all loss or liability, claims, demands, damages, costs and expenses including, without limitation, reasonable attorneys', accountants' and expert witness fees, costs and expenses, that the Indemnified Parties, or any one or more of them, may sustain or incur, directly or indirectly (collectively, "Claims"), from, or as a result of the infringement (or claim thereof) by an Indemnified Party of any patent, copyright, trademark, trade secret, nondisclosure, and/or other intellectual property right through such Indemnified Party's use, or other exercise of its rights in, the Licensed Products, and/or any other materials delivered hereunder. This indemnification clause shall be null and void to the extent that Licensee has directed INIT to incorporate the infringing object, Licensee modifies the use of the INIT Software without INIT approval or Licensee combines, operates or uses the INIT Software with anything INIT did not approve in writing, develop, or provide and any of the foregoing Licensee actions cause or contribute to the infringement.

15 CONFIDENTIALITY.

15.1 Definition of Confidential Information. As used in this EULA, the term "Confidential Information" means, subject to Section 15.2 below, any and all nonpublic information that a party to this EULA (each a "Disclosing Party") designates in writing as being confidential to the party that receives such information (each a "Receiving Party"). Subject to Section 15.2 below, "Confidential Information" includes the INIT Software and may also include, without limitation, information in tangible or intangible form relating to and/or including (a) the marketing or promotion of any Disclosing Party product or service (b) the Disclosing Party's business policies or practices, (c) the Disclosing Party's customers, and the disclosing party notifies the other party in writing that it should be treated as confidential.

15.2 Exceptions to Confidential Information. The term "Confidential Information" does not include information, however designated, that (a) is or subsequently becomes publicly available without the Receiving Party's breach of any obligation owed to the Disclosing Party; (b) is known to the Receiving Party prior to the Disclosing Party's disclosure of such information to the Receiving Party, (c) becomes known to the Receiving Party from a source other than the Disclosing Party other than by the breach of an obligation of confidentiality owed to the Disclosing Party, (d) is independently developed by the Receiving Party; and or (e) is determined by a court of competent jurisdiction not to be entitled to protection under the laws of the State of Washington.

15.3 Obligations Regarding Confidential Information. The Receiving Party agrees that during the term of this EULA and forever thereafter it will (a) refrain from disclosing any Confidential Information of the Disclosing Party to third parties, (b) take reasonable security precautions, at least as great as the precautions it takes to protect its own confidential information but no less than reasonable care, to keep confidential the Confidential Information of the Disclosing Party, and (c) refrain from using, disclosing, reproducing, summarizing and/or distributing the Confidential Information of the Disclosing Party, in each instance except as expressly provided in this EULA. Furthermore, the Receiving Party agrees, to the extent it is able to, to promptly upon the termination of this License Agreement, deliver to the Disclosing Party all originals, copies, reproductions and summaries of the Confidential Information of the Disclosing Party, or at the Disclosing Party's option, certify the destruction of the same; provided, however, that the Receiving Party may keep one copy for archival purposes.



ATTACHMENT A END-USER LICENSE AGREEMENT

- 15.4 Required Disclosures.** Notwithstanding anything contained herein to the contrary, a Receiving Party may disclose the Confidential Information of a Disclosing Party in accordance with a law, regulation, rule or judicial or other governmental order, provided that the Receiving Party either (a) gives the Disclosing Party reasonable notice prior to such disclosure to allow the Disclosing Party a reasonable opportunity to seek a protective order or equivalent, or (b) obtains written assurance from the applicable judicial or governmental entity that it will afford the Confidential Information the highest level of protection afforded under applicable law, regulation or rule.
- 15.5 No License.** All Confidential Information is and shall remain the property of Disclosing Party. By disclosing Confidential Information to the Receiving Party, the Disclosing Party does not grant any express or implied rights to the Receiving Party to or under any patents, copyrights, trademarks, or trade secret information except as otherwise provided herein. Disclosing Party reserves, without prejudice, the ability to protect its rights under any such patents, copyrights, trademarks, or trade secrets.
- 15.6 Injunctive Relief.** INIT and Licensee each acknowledge and agree that there can be no adequate remedy at law for any breach (or threatened breach) of either party's obligations under Section 15.3 above, that any such breach (or threatened breach) may allow the breaching party (or the party threatening breach) or third parties to unfairly compete with the other party resulting in irreparable harm to the other party, and, therefore, that upon any breach (or threatened breach) of any provision of Section 15.3 above, the non-breaching party will be entitled to obtain from a court extraordinary relief including but, not limited to, temporary restraining orders, preliminary injunctions, permanent injunctions, and/or decrees of specific performance, in each instance without the necessity of posting a bond.

16 MISCELLANEOUS PROVISIONS.

- 16.1 Modifications.** This License Agreement may not be modified, amended, rescinded, canceled or waived, in whole or in part, except pursuant to a written agreement signed by both parties. Without limiting the foregoing, in the event of any conflict between the terms and conditions of this Agreement and the terms and conditions of the Purchase Contract and appendices, and attachments thereunder, the terms of the Purchase Contract shall prevail.
- 16.2 Severability.** If any provision of this License Agreement is declared or found to be illegal, unenforceable or void, then both parties shall be relieved of all obligations arising under such provision, but only to the extent that such provision is illegal, unenforceable or void, it being the intent and agreement of the parties that this License Agreement shall be deemed amended by modifying such provision to the extent necessary to make it legal and enforceable while preserving its intent or, if that is not possible, by substituting therefore another provision that is legal and enforceable and achieves the same objective. If the remainder of this License Agreement shall not be affected by such declaration or finding and is capable of substantial performance, then, each provision not so affected shall be enforced to the extent permitted by law.
- 16.3 Relationship of Parties.** Each of the parties to this License Agreement is acting only as an independent contractor and assumes full responsibility for each of its employees and shall be solely responsible for the payment of compensation to its personnel. This License Agreement does not constitute either party hereto as the agent or legal representative of the other party and does not create a partnership or joint venture between them.
- 16.4 Headings, Defined Terms, Use of Terms.** Headings of articles and sections in this License Agreement are for the convenience of the parties only. Accordingly, they shall



ATTACHMENT A END-USER LICENSE AGREEMENT

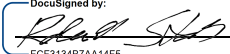
not constitute a part of this License Agreement when interpreting or enforcing this License Agreement. All defined terms used in this License Agreement shall be deemed to refer to the masculine, feminine, neuter, singular and/or plural, in each instance as the context and/or particular facts may require. Use of the terms "hereunder", "herein", "hereby", and similar terms refer to this License Agreement.

- 16.5 Survival.** All of INIT's obligations under this License Agreement which are not, by the express terms of this License Agreement, fully to be performed during the term of this License Agreement shall indefinitely survive the termination of this License Agreement for any reason. Such obligations include, without limitation, obligations under Sections 14 and 15 above. Similarly, Licensee's obligations under Section 15 above shall indefinitely survive the termination of this License Agreement for any reason.
- 16.6 Cumulative Remedies.** No right or remedy conferred by this License Agreement is exclusive of any other right or remedy conferred herein or by law or in equity; rather, all of such rights and remedies are cumulative of every other such right or remedy and may be exercised concurrently or separately from time-to-time.
- 16.7 Recitals.** The recitals to this License Agreement are hereby incorporated herein as an integral part hereof.
- 16.8 Notices.** All notices required by this License Agreement shall be in writing. To be effective, notices from INIT to Licensee shall be delivered or mailed to Licensee at Licensee's address set forth above, Attn: Brittany Esdaile, Next Generation ORCA Regional Program Manager, and Ashley Bowman, Agency Agreements Analyst. Any such notice to Licensee shall be deemed given or served and received hereunder when delivered personally or three (3) days after being mailed certified mail, postage prepaid, in each instance in accordance with this Section 16.8. Notices from Licensee to INIT shall be delivered or mailed to INIT Chief Financial Officer at INIT's address designated above. Any such notice to INIT shall be deemed given or served and received hereunder when delivered personally or three (3) days after being mailed certified mail, postage prepaid, in each instance in accordance with this Section 16.8.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives as of the Effective Date.

INIT Innovations in Transportation, Inc.

By:

DocuSigned by:

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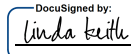
Printed Name:

Roland Staib

Title:

~~President~~ & CEO

By:

DocuSigned by:

 18F332AF3C864B7...

Printed Name:

Linda Keith

Title:

Vice President & CFO



ATTACHMENT A END-USER LICENSE AGREEMENT

Central Puget Sound Regional Transit Authority
dba Sound Transit

By:

DocuSigned by:
Mike Harbour

Printed Name:

85B35420F800429
Mike Harbour

Title:

Deputy CEO



ATTACHMENT A END-USER LICENSE AGREEMENT

Exhibit A

As of the execution of this EULA, the INIT Software is listed here. The INIT Software listed provides the functionality and capabilities described in the Purchase Contract. Any additional software produced and provided by INIT, and its corrections, bug fixes, enhancements, upgrade, updates or other modifications, throughout the term of the Purchase Contract shall be incorporated below as if fully set forth herein.

INIT Server Software

- MOBILEvario
- MOBILEguard
- MOBILEsymon

INIT Workstation Software

- MOBILEvario Customer Service workstation license

INIT Device Software

- Basic Driver Display Unit, Onboard and Wayside Validator, and Vending Machine Software for Fare Collection



Attachment B – INIT Software Maintenance Agreement



END-USER MAINTENANCE AGREEMENT

This End-User Maintenance Agreement ("EUMA" or "Maintenance Agreement") is made and entered into as of this _____ ("Effective Date") by and between INIT Innovations in Transportation, Inc., a Virginia corporation located at 424 Network Station, Chesapeake, Virginia 23320 ("INIT"), and _____ ("<<<Cust. Name>>>") with an address of _____.

RECITALS

A. INIT represents that it possesses the right to provide Software Maintenance services to support the access, delivery and management of a Fare Collection System.

B. <<<Cust. Name>>> desires Software Maintenance Services for the INIT Client Software, the INIT Server Software, the INIT Vehicle Software and INIT Device Software (collectively, the "INIT Software") licensed to <<<Cust. Name>>> under a separate agreement. INIT desires to provide Software Maintenance Services to <<<Cust. Name>>>, in each instance subject to the terms and conditions set forth below.

TERMS AND CONDITIONS

NOW, THEREFORE, in consideration of the premises and the mutual covenants and agreements set forth below and other good and valuable considerations, the receipt and sufficiency of which are hereby acknowledged, the parties hereto do hereby covenant and agree as follows:

1. Definitions

The following definitions apply in this EUMA:

- 1.1. "Documentation" means any written documentation that is supplied by INIT in connection with the INIT Software.
- 1.2. "INIT Software" shall have the meaning ascribed to that term in Recital B above. The term INIT Software shall also include, without limitation, any and all corrections, bug fixes, enhancements, updates or other modifications that INIT may hereafter provide to <<<Cust. Name>>>. Such corrections, bug fixes, enhancements, updates or other modifications must be communicated to <<<Cust. Name>>> prior to activation in the live system. This notification or communication can be made via email, phone or SharePoint to key <<<Cust. Name>>> personnel.
- 1.3. "INIT Supplied Hardware" shall have the meaning ascribed to that term in Recital B above. The term INIT Supplied Hardware shall also include, without limitation, any and all corrections, bug fixes, enhancements, updates or other modifications that INIT may hereafter provide to <<<Cust. Name>>>.
- 1.4. "Price Sheet" means the price proposal of INIT dated 06/08/2018, which is hereby incorporated herein as Attachment B.
- 1.5. "Service Level Agreement" means the Service Level Agreement dated xx/xx/xx, which is hereby incorporated herein as Attachment A.
- 1.6. "."

2. Period of Maintenance

The period of Maintenance is from xx/xx/xx through xx/xx/xx and may be renewed in accordance with Section 3.

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3. Renewal Option

This agreement includes xxxxxxx 1-year renewal options to cover the expected useful life of the software and can be exercised at the sole discretion of <<<Cust. Name>>>.

4. Notification

<<<Cust. Name>>> will notify INIT of its intent to renew 90 days prior to the expiration of the then current maintenance agreement year and request pricing for the subsequent maintenance year. However, in no case shall the increase in pricing, if any, exceed ten percent (10%) per year of the existing contract. See Attachment A for description of extended maintenance procedures for new equipment purchases. INIT shall be required to furnish pricing at least 60 days prior to the end date of the then current maintenance agreement with an explanation for any increases. <<<Cust. Name>>> shall issue a PO within 30 days of receipt of INIT invoice.

5. Limited Warranties

5.1. **Limitations.** The maintenance agreement does not include services for repair of defects or failures resulting from events outside INIT's responsibility, such as external influences, inappropriate treatment or faulty operation.

5.2. **Authority.** INIT represents and warrants that (a) INIT is a corporation duly organized, validly existing and in good standing under and in accordance with the laws of the Commonwealth of Virginia, (b) INIT has full legal power and authority to enter into this Agreement, and (c) the person who executes and delivers this Agreement for INIT and on its behalf is duly authorized and has all requisite authority to do the same.

5.3. **No Security Interests.** INIT represents and warrants that the INIT Software has not been pledged, in whole or in part, as security for any loans or other obligations and there are otherwise no security interests, liens or other types of encumbrances on the INIT Software.

5.4. **Services.** INIT represents and warrants that INIT will perform all services hereunder in accordance with generally accepted industry standards and use its own knowledge and skill in the performance of such services.

5.5. **LIMITATION AND EXCLUSION OF WARRANTIES.** EXCEPT AS EXPRESSLY SET FORTH IN THIS MAINTENANCE AGREEMENT, INIT MAKES NO WARRANTIES, REPRESENTATIONS, OR PROMISES. INIT EXPRESSLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY, TITLE, SUITABILITY FOR ANY SPECIFIC PURPOSE, OR SYSTEM. INIT DOES NOT WARRANT THAT THE LICENSED PRODUCTS WILL PERFORM WITHOUT INTERRUPTION OR ERROR, AND DOES NOT WARRANT THAT THEY WILL SATISFY ANY PARTICULAR REQUIREMENTS.

5.6. **LIMITATION OF LIABILITY.** EXCEPT FOR A PARTY'S WILLFUL MISCONDUCT OR GROSS NEGLIGENCE, NEITHER PARTY SHALL BE LIABLE TO THE OTHER PARTY FOR ANY INCIDENTAL, CONSEQUENTIAL, OR INDIRECT DAMAGES ARISING OUT OF THIS MAINTENANCE AGREEMENT. TO THE MAXIMUM EXTENT ALLOWABLE BY LAW AND EXCEPT FOR INIT'S WILLFUL MISCONDUCT OR GROSS NEGLIGENCE, INIT'S TOTAL LIABILITY ARISING FROM OR RELATING TO THIS MAINTENANCE AGREEMENT, WHETHER IN CONTRACT, TORT OR ANY OTHER GROUNDS, IS LIMITED TO THE GREATER OF (Y) \$121,000.00 OR (Z) THREE (3)

END-USER MAINTENANCE AGREEMENT

TIMES THE TOTAL AMOUNT OF MAINTENANCE FEES, WHICHEVER IS LOWER THAT <<<CUST. NAME>>> HAS ACTUALLY PAID FOR THE SERVICES AT THE TIME THE CLAIM IS MADE.

6. Miscellaneous Provisions

- 6.1. **Complete Agreement.** This Maintenance Agreement represents the complete agreement between <<<Cust. Name>>> and INIT with regard to Software Maintenance Services, and all prior oral or written agreements, representations or understandings are superseded and void.
- 6.2. **Modifications.** This EUMA may not be modified, amended, rescinded, canceled or waived, in whole or in part, except pursuant to a written agreement signed by both parties. Without limiting the foregoing, in the event of any conflict between the terms and conditions of this Maintenance Agreement and the terms and conditions of any purchase order, invoice, shrink-wrap agreement, click through agreement or other document of one of the parties purporting to override the terms of this Maintenance Agreement, the terms and conditions of this Maintenance Agreement shall prevail.
- 6.3. **Severability.** If any provision of this Maintenance Agreement is declared or found to be illegal, unenforceable or void, then both parties shall be relieved of all obligations arising under such provision, but only to the extent that such provision is illegal, unenforceable or void, it being the intent and agreement of the parties that this Maintenance Agreement shall be deemed amended by modifying such provision to the extent necessary to make it legal and enforceable while preserving its intent or, if that is not possible, by substituting therefore another provision that is legal and enforceable and achieves the same objective. If the remainder of this Maintenance Agreement shall not be affected by such declaration or finding and is capable of substantial performance, then, each provision not so affected shall be enforced to the extent permitted by law.
- 6.4. **Relationship of Parties.** Each of the parties to this Maintenance Agreement is acting only as an independent contractor and assumes full responsibility for each of its employees and shall be solely responsible for the payment of compensation to its personnel. This Maintenance Agreement does not constitute either party hereto as the agent or legal representative of the other party and does not create a partnership or joint venture between them.
- 6.5. **Assignment.** Neither this Maintenance Agreement nor any of the rights, interests or obligations hereunder may be assigned by INIT (whether by operation of law or otherwise) without the prior written consent of <<<Cust. Name>>>. Subject to the foregoing, this Maintenance Agreement shall be binding upon, inure to the benefit of and be enforceable by the parties and their respective successors and permitted assigns.
- 6.6. **Headings, Defined Terms, Use of Terms.** Headings of articles and sections in this Maintenance Agreement are for the convenience of the parties only. Accordingly, they shall not constitute a part of this Maintenance Agreement when interpreting or enforcing this Maintenance Agreement. All defined terms used in this Maintenance Agreement shall be deemed to refer to the masculine, feminine, neuter, singular and/or plural, in each instance as the context and/or particular facts may require. Use of the terms "hereunder", "herein", "hereby", and similar terms refer to this Maintenance Agreement.
- 6.7. **Cumulative Remedies.** No right or remedy conferred by this Maintenance Agreement is exclusive of any other right or remedy conferred herein or by law or in equity; rather, all of such rights and remedies are cumulative of every other such right or remedy and may be exercised concurrently or separately from time-to-time
- 6.8. **Recitals.** The recitals to this Maintenance Agreement are hereby incorporated herein as an integral part hereof.

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Notices. All notices required by this Maintenance Agreement shall be in writing. To be effective, notices from INIT to <<<Cust. Name>>> shall be delivered or mailed to _____ at _____. Any such notice to INIT shall be deemed given or served and received hereunder when delivered personally or three (3) days after being mailed certified mail, postage prepaid, in each instance in accordance with this Section. Notices from <<<Cust. Name>>> to INIT shall be delivered or mailed to INIT at INIT's address designated above marked to the attention of Office of General Counsel. Any such notice to INIT shall be deemed given or served and received hereunder when delivered personally or three (3) days after being mailed certified mail, postage prepaid, in each instance in accordance with this Section.

7. Protection Rights

All intellectual property rights and commercialization rights of the software and other intellectual property remain with INIT. Upon payment, customer purchases user rights for the delivered software. The right of use allows the use of the software only by customer. The customer does not have the right to allow others to use the software. The customer purchases a number of workplace licenses and has the right to install the software on the same number of computers. Backup-copies of the software may be made only for customer's own use to secure data. Statements concerning protection rights remain on the copies. Specific manufacturer's terms of licenses apply for third party hardware and software.

8. Applicable Law

In the event of a conflict between customer and INIT regarding the purchase of services hereunder, customer and INIT agree that (a) any actions or claims brought shall be governed by the laws of the Commonwealth of Virginia, without regard to its choice of law rules, and (b) such action or claim shall be brought exclusively in the Commonwealth of Virginia before the courts in the City of Chesapeake or the United States District Court for the Eastern District of Virginia, Norfolk Division.

9. Compliance with Laws

INIT bears no responsibility or liability for the services' compliance with any laws, statutes, ordinances or regulations that may be applicable to customer or customer's use of the services. The customer is responsible for ensuring that the services and their use comply with any and all applicable regulations in the country or state concerned.



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IN WITNESS WHEREOF, the parties have caused this Maintenance Agreement to be executed by their duly authorized representatives as of the Effective Date.

INIT Innovations in Transportation, Inc.

By:

Printed
Name:

Title:

<<<Cust. Name>>>

By:

Printed
Name:

Title:



END-USER MAINTENANCE AGREEMENT

Attachment A - Service Description and Service Levels

*Described in proposal document **Tab 2 - Methodology and Approach to Implementation and Operation and Maintenance Services_03.docx**, sections 1.14.2.2 and 1.14.2.5. The final content and format of Attachment A will be mutually agreed upon between Sound Transit and INIT.*

Attachment B – Price Sheet

Please refer to the RFP proposal response price sheet.



Attachment C – Oracle Enterprise Edition with Advanced Security & Maintenance Agreement



Attachment D – Shareplex Subscription Agreement including Professional Setup Services



Attachment E – IBM Maas 360 Mobile Device Management License Agreement



Attachment F – Source Code Escrow Agreement



SECTION 08 – CONTRACT PRICE SCHEDULE

CONTRACT PRICING

The Contractor will be compensated upon Acceptance of the deliverable(s) for each specific item, as described in the Contract Documents. Lump Sums and Hourly Rates are fully-burdened which is inclusive of direct hourly rates, direct costs including travel, parking, overhead, and profit. Total compensation for each item will not exceed the amount identified for that item as follows. Contract Pricing will remain constant throughout the term of the agreement – no price escalation will apply regardless of market conditions.

The ORCA Agencies may, in their discretion, pay for extraordinary, unanticipated costs, subject to prior written approval.

In the “Unit” column: “LS” means lump sum; “EA” means each; “YR” means per year; “MO” means per month; and “HR” means per hour.

Some of the Lump Sum prices are divided into Milestone or Partial payments as described in the Milestone/Partial Payment Schedule below.

Item numbers in the “Item No.” column are for reference only. They are not intended to be in order and some numbers may be missing as they were removed during the contract negotiation process.

PRICE SECTION 1 – IMPLEMENTATION SERVICES

Item No.	SOW Ref.	Description	Unit	Unit Price
Program and Contract Management				
1.01	2	Program & Contract Management (NTP to System Acceptance)	LS	\$ 3,735,467.80
UI/UX Consulting				
1.01a	2	Project Management, Project Initiation and Onboarding	LS	\$ 694,212.00
1.01b	2	Corporate Design and Style Guide	LS	\$ 271,743.00
1.01c	2	Website Design Guide	LS	\$ 113,818.00
1.01d	2	Validator	LS	\$ 149,042.00
1.01e	2	Driver Display Unit	LS	\$ 98,504.00
1.01f	2	Front Office Ticket Sales	LS	\$ 103,404.00
1.01g	2	Vending Machines	LS	\$ 134,340.00
Software Escrow				
1.01h	2	Initial Deposit – Level 1 Escrow (or equivalent)	LS	\$ 56,456.00
Installation and Transition Services				
1.02	2	Transition Strategy and Planning	LS	\$ 546,189.70
1.03	2	Back-Office Installation and Configuration, Including Documentation	LS	\$ 732,701.36
1.04	2	Field Device Site Surveys and Prototyping	LS	\$ 63,307.96
1.05a	2	Onboard Equipment (validator and DDU) Installation (Excluding KCM)	EA	\$ 1,395.55
1.05b	2	Onboard Equipment (validator and DDU) Commissioning (Excluding KCM)	EA	\$ 206.50
1.05c	2	Onboard Equipment (validator and DDU) Documentation	EA	\$ 12,938.00



1.06	2	Onboard Validator Equipment Installation, Commissioning, and Documentation (KCM Only)	EA	Not applicable
1.07a	2	Wayside Validator Installation	EA	\$ 1,545.79
1.07b	2	Wayside Validator Commissioning	EA	\$ 103.25
1.07c	2	Wayside Validator Documentation	EA	\$ 12,938.00
1.08a	2	VM Installation	EA	\$ 4,239.96
1.08b	2	VM Commissioning	EA	\$ 206.50
1.08c	2	VM Documentation	EA	\$ 12,938.00
1.09a	2	CST Installation	EA	\$ 707.16
1.09b	2	CST Commissioning	EA	\$ 206.15
1.09c	2	CST Documentation	EA	\$12,938.00
Testing				
1.10	2	Agency Test Facility Implementation, Housing, and Documentation	LS	\$ 404,197.56
1.11	2	Factory Testing and Documentation	LS	\$ 378,976.92
1.12	2	Integration Testing and Documentation	LS	\$ 345,467.72
1.13	2	Pilot Testing and Documentation	LS	\$ 346,192.53
1.14	2	System Acceptance Testing and Documentation	LS	\$ 404,582.72
Training				
1.15	2	Training Course Development Services	LS	\$ 32,759.00
1.16	2	Training Course Delivery and Materials	EA	\$ 84,318.00
Manuals				
1.17	2	System Manuals	LS	\$ 145,005.78

PRICE SECTION 2 – SYSTEM SOFTWARE DESIGN

Item No.	SOW Ref.	Description and Model/Part Number or Product Name	Unit	Unit Price
Back Office Applications				
2.01	6	Account-based Transaction Processor	LS	\$ 905,117.89
2.02	6	Customer Relationship Management	LS	\$ 1,292,571.72
2.02a	6	Salesforce User – Tier 1 (1-99 users)	EA	\$ 180.00
2.02b	6	Salesforce User – Tier 2 (100+ users)	EA	\$ 150.00
2.03	6	Asset Incident Management	LS	\$ 100,702.64
2.04	6	System Manager	LS	\$ 197,763.05
2.05	6	Fare Media Management	LS	\$ 61,247.94
2.06	6	Financial Management	LS	\$ 774,471.30
2.06a	6	Sage 300c User – Tier 1 (1-14 users)	EA	\$ 3,662.50
2.06b	6	Sage 300c User – Tier 2 (15-25 users)	EA	\$ 3,223.00
2.06c	6	Sage 300c User – Tier 3 (26+ users)	EA	\$ 2,760.00
2.07	6	Central Payment	LS	\$ 180,955.06
2.08	6	Configuration and Change Management	LS	\$ 104,630.00
2.09	6	Tariff Management	LS	\$ 37,119.32



Item No.	SOW Ref.	Description and Model/Part Number or Product Name	Unit	Unit Price
2.10	6	API Management	LS	\$ 275,539.44
		Externally Sourced Applications		
2.11	5	Customer Mobile App	LS	\$ 717,815.96
2.12	5	Agency Mobile Apps (Fare Inspection & Fare Payment)	LS	\$ 231,901.62
2.13	5	Customer Website	LS	\$ 367,257.90
		Field Device and Equipment Software		
2.14	4	Onboard and Wayside Validator Software	LS	\$ 100,063.17
2.15	4	Driver Display Unit Software	LS	\$ 49,182.12
2.16	4	Customer Service Terminal Software	LS	\$ 136,953.24
2.17	4	Full Feature Vending Machine Software	LS	\$ 287,396.52
		API Development		
2.18	3	Application Programming Interface (API) Development	LS	\$ 37,119.32
		System Integration Services		
2.19	3	Onboard Integration (PT, CT, KT, ET)	LS	\$ 117,258.84
2.20	3	Onboard Integration (KCM)	LS	\$ 0.00
2.21	3	Washington State Ferries Integration	LS	\$ 63,607.28
2.22	3	Data Access and Reporting Platform (DARe) Integration	LS	\$ 146,449.36
2.23	3	Retail Network Integration	LS	\$ 107,978.76
2.24	3	Integration with Legacy ORCA Back Office	LS	\$ 46,398.40
2.25	3	ADA Paratransit Integration	LS	\$ 90,770.88
2.26	6	Integration of Agency Provided CRM Application (\$0 if SI-provided CRM application is proposed)	LS	\$ 0.00
2.27	6	Integration of Agency Provided Financial Application (\$0 if SI-provided financial application is proposed)	LS	\$ 0.00
2.27a	6	Vanpool Integration	LS	\$128,564.84
		Transit Payment Application		
2.28	7	Transit Payment Application	LS	\$61,492.40

PRICE SECTION 3 – EQUIPMENT AND SPARES

Item No.	SOW Ref.	Description and Product Identity	Unit	Quantity for tiered price	Unit Price
		Production Equipment			
3.02 Tier 1	4	Onboard Validator (including spares) PROXmobil3	EA	1-10	\$ 2,025.18
3.02 Tier 2	4	Onboard Validator (including spares) PROXmobil3	EA	11-20	\$ 1,944.17
3.02 Tier 3	4	Onboard Validator (including spares) PROXmobil3	EA	21-50	\$ 1,782.15
3.02 Tier 4	4	Onboard Validator (including spares) PROXmobil3	EA	51-100	\$ 1,701.15
3.02 Tier 5	4	Onboard Validator (including spares) PROXmobil3	EA	100+	\$ 1,620.14



Item No.	SOW Ref.	Description and Product Identity	Unit	Quantity for tiered price	Unit Price
3.03	4	Onboard Validator Mounting System and Installation Kit (including spares)	EA	Not applicable	\$ 657.94
3.04 Tier 1	4	Driver Display Unit (including spares) TOUCHit3	EA	1-10	\$ 856.34
3.04 Tier 2	4	Driver Display Unit (including spares) TOUCHit3	EA	11-20	\$ 822.08
3.04 Tier 3	4	Driver Display Unit (including spares) TOUCHit3	EA	21-50	\$ 753.58
3.04 Tier 4	4	Driver Display Unit (including spares) TOUCHit3	EA	51-100	\$ 719.32
3.04 Tier 5	4	Driver Display Unit (including spares) TOUCHit3	EA	100+	\$ 685.07
3.05	4	Driver Display Unit Mounting System and Installation Kit (including spares)	EA	Not applicable	\$ 354.55
3.06 Tier 1	4	Wayside Validators (including spares) PROXmobil3	EA	1-10	\$ 1,884.44
3.06 Tier 2	4	Wayside Validators (including spares) PROXmobil3	EA	11-20	\$ 1,805.93
3.06 Tier 3	4	Wayside Validators (including spares) PROXmobil3	EA	21-50	\$ 1,727.41
3.06 Tier 4	4	Wayside Validators (including spares) PROXmobil3	EA	51-100	\$ 1,648.89
3.06 Tier 5	4	Wayside Validators (including spares) PROXmobil3	EA	100+	\$ 1,570.37
3.07	4	Wayside Validator System and Installation Kit (including spares)	EA	Not applicable	\$ 1,178.50
3.08 Tier 1	4	Customer Service Terminal (including spares, not including printer)	EA	1-10	\$ 6,392.00
3.08 Tier 2	4	Customer Service Terminal (including spares, not including printer)	EA	11-20	\$ 6,101.48
3.08 Tier 3	4	Customer Service Terminal (including spares, not including printer)	EA	21-50	\$ 5,810.93
3.09	4	Customer Service Terminal Portable Printer	EA	Not applicable	\$ 2,659.50
3.10	4	Customer Service Terminal Mail Center Printer	EA	Not applicable	\$ 7,925.08
3.11 Tier 1	4	Full Feature Vending Machines (including spares) VENDstation	EA	1-2	\$ 67,273.70
3.11 Tier 2	4	Full Feature Vending Machines (including spares) VENDstation	EA	3-10	\$ 64,871.06
3.11 Tier 3	4	Full Feature Vending Machines (including spares) VENDstation	EA	11-20	\$ 57,663.17
3.11 Tier 4	4	Full Feature Vending Machines (including spares) VENDstation	EA	21-50	\$ 52,857.90
3.11 Tier 5	4	Full Feature Vending Machines (including spares) VENDstation	EA	51-100	\$ 50,455.27
3.11 Tier 6	4	Full Feature Vending Machines (including spares) VENDstation	EA	100+	\$ 48,052.64



Item No.	SOW Ref.	Description and Product Identity	Unit	Quantity for tiered price	Unit Price
3.11a	4	Credit for omission of bill and coin acceptance	EA	Not applicable	(\$ 7,702.40)
3.11b	4	Credit for omission of coin change issuance	EA	Not applicable	(\$ 3,552.00)
3.11c	4	Credit for omission of change issuance	EA	Not applicable	(\$ 1,832.00)
3.11d	4	Credit for omission of media issuance	EA	Not applicable	(\$ 4,992.00)
3.11e Tier 1	4	Light Feature Vending Machines VENDstation*	EA	1-2	\$ 51,326.63
3.11e Tier 2	4	Light Feature Vending Machines VENDstation	EA	3-10	\$ 49,493.54
3.11e Tier 3	4	Light Feature Vending Machines VENDstation	EA	11-20	\$ 43,994.26
3.11e Tier 4	4	Light Feature Vending Machines VENDstation	EA	21-50	\$ 40,328.07
3.11e Tier 5	4	Light Feature Vending Machines VENDstation	EA	51-100	\$ 38,494.97
3.11e Tier 5	4	Light Feature Vending Machines VENDstation	EA	100+	\$ 36,661.88
Test Equipment					
3.12a	2	Test System with online applications of the INIT Software listed in the EULA	LS	Not applicable	\$ 39,205.00
3.12b	2	Vehicle BIB (including PROXmobile3, TOUCHit3, and mounting hardware)	EA	Not applicable	\$ 4,149.00
3.12c	2	Onboard and Wayside Validator PROXmobile3 (including mounting hardware)	EA	Not applicable	\$ 1,659.60
3.12d	2	Full Feature Vending Machine VENDstation	EA	Not applicable	\$ 50,787.99
3.12e	2	Light Feature Vending Machine VENDstation	EA	Not applicable	\$ 35,858.09
3.12f	2	Customer Service Terminal Test Unit	EA	Not applicable	\$ 12,573.19
Training Equipment					
3.13 Tier 1	2	On-board Validator Training Unit (BIB) – including PROXmobile3, TOUCHit3, mounting hardware and other SI equipment	EA	1-10	\$ 5,534.08
3.13 Tier 2	2	On-board Validator Training Unit (BIB) – including PROXmobile3, TOUCHit3, mounting hardware and other SI equipment	EA	11-20	\$ 4,812.24
3.13 Tier 3	2	On-board Validator Training Unit (BIB) – including PROXmobile3, TOUCHit3, mounting hardware and other SI equipment	EA	21-50	\$ 4,667.87
3.14 Tier 1	2	Wayside Validator Training Unit (BIB) – including PROXmobile3, and mounting hardware	EA	1-10	\$ 3,783.37
3.14 Tier 2	2	Wayside Validator Training Unit (BIB) – including PROXmobile3, and mounting hardware	EA	11-20	\$ 3,669.87

* The Contactor's proposal erroneously named the Light Feature Vending Machine as VENDmobile, but the correct name is VENDstation. The functionality of the Light Feature Vending Machine described in the Contractor's proposal is correct and is what is priced here.



Item No.	SOW Ref.	Description and Product Identity	Unit	Quantity for tiered price	Unit Price
3.14 Tier 3	2	Wayside Validator Training Unit (BIB) – including PROXmobile3, and mounting hardware	EA	21-50	\$ 3,594.20
3.15 Tier 1	2	Customer Service Terminal Unit (BIB)	EA	1-10	\$ 13,204.04
3.15 Tier 2	2	Customer Service Terminal Unit (BIB)	EA	11-20	\$ 11,481.77
3.15 Tier 3	2	Customer Service Terminal Unit (BIB)	EA	21-50	\$ 11,137.32
Spare Part Modules					
3.16 Tier 1	2	customer display size 15", TOUCH 15" + controller, cables	EA	1-10	\$ 2,929.44
3.16 Tier 2	2	customer display size 15", TOUCH 15" + controller, cables	EA	11-20	\$ 2,796.28
3.16 Tier 3	2	customer display size 15", TOUCH 15" + controller, cables	EA	21+	\$ 2,663.12
3.17 Tier 1	2	FEIG card reader for vending machine	EA	1-10	\$ 975.36
3.17 Tier 2	2	FEIG card reader for vending machine	EA	11-20	\$ 926.59
3.17 Tier 3	2	FEIG card reader for vending machine	EA	21+	\$ 877.82
3.18 Tier 1	2	coin handling unit with change (6x carousel without hoppers)	EA	1-10	\$ 6,207.19
3.18 Tier 2	2	coin handling unit with change (6x carousel without hoppers)	EA	11-20	\$ 5,774.13
3.18 Tier 3	2	coin handling unit with change (6x carousel without hoppers)	EA	21+	\$ 5,413.25
3.19 Tier 1	2	bill handling unit (MEI SCR)	EA	1-10	\$ 7,865.30
3.19 Tier 2	2	bill handling unit (MEI SCR)	EA	11-20	\$ 7,209.86
3.19 Tier 3	2	bill handling unit (MEI SCR)	EA	21+	\$ 6,554.42
3.20 Tier 1	2	banknote vault (for 1400 notes)	EA	1-10	\$ 1,315.25
3.20 Tier 2	2	banknote vault (for 1400 notes)	EA	11-20	\$ 1,221.31
3.20 Tier 3	2	banknote vault (for 1400 notes)	EA	21+	\$ 1,174.33
3.21 Tier 1	2	bank card processing unit	EA	1-10	\$ 4,369.61
3.21 Tier 2	2	bank card processing unit	EA	11-20	\$ 4,057.50
3.21 Tier 3	2	bank card processing unit	EA	21+	\$ 3,901.44



Item No.	SOW Ref.	Description and Product Identity	Unit	Quantity for tiered price	Unit Price
3.22 Tier 1	2	1 x double printers (2 paper rolls in total)	EA	1-10	\$ 7,066.81
3.22 Tier 2	2	1 x double printers (2 paper rolls in total)	EA	11-20	\$ 6,796.58
3.22 Tier 3	2	1 x double printers (2 paper rolls in total)	EA	21+	\$ 6,550.92
3.23 Tier 1	2	Smartcard dispenser	EA	1-10	\$ 4,726.98
3.23 Tier 2	2	Smartcard dispenser	EA	11-20	\$ 4,361.81
3.23 Tier 3	2	Smartcard dispenser	EA	21+	\$ 4,057.50
3.24 Tier 1	2	VENDstation board	EA	1-10	\$ 4,353.68
3.24 Tier 2	2	VENDstation board	EA	11-20	\$ 3,957.89
3.24 Tier 3	2	VENDstation board	EA	21+	\$ 3,598.08
3.25 Tier 1	2	VENDstation extension board	EA	1-10	\$ 1,493.54
3.25 Tier 2	2	VENDstation extension board	EA	11-20	\$ 1,357.76
3.25 Tier 3	2	VENDstation extension board	EA	21+	\$ 1,234.33
3.26 Tier 1	2	VENDstation power supply	EA	1-10	\$ 665.36
3.26 Tier 2	2	VENDstation power supply	EA	11-20	\$ 604.88
3.26 Tier 3	2	VENDstation power supply	EA	21+	\$ 549.89
3.27 Tier 1	2	VENDstation Uninterruptible power supply (UPS)	EA	1-10	\$ 884.67
3.27 Tier 2	2	VENDstation Uninterruptible power supply (UPS)	EA	11-20	\$ 804.25
3.27 Tier 3	2	VENDstation Uninterruptible power supply (UPS)	EA	21+	\$ 731.14
3.28	2	HP Elite USB-C Dock	EA	Not applicable	\$ 296.64
3.29	2	EP EliteDisplay E220t 21.5-inch touch monitor	EA	Not applicable	\$ 573.50
3.30	2	Logitech 4K MK520 Wireless Keyboard and Mouse Combo	EA	Not applicable	\$ 118.66
3.31	2	INIT USB Card Reader	EA	Not applicable	\$ 395.52
3.32	2	Logitech 4K Pro Web	EA	Not applicable	\$ 316.42
3.33	2	Epson DS-1630 Flatbed Color Document Scanner	EA	Not applicable	\$ 593.50
3.34	2	Epson DS-40 color portable scanner	EA	Not applicable	\$ 296.64



Item No.	SOW Ref.	Description and Product Identity	Unit	Quantity for tiered price	Unit Price
3.35	2	MS-Cash Drawer (J-423-USB-M-B)	EA	Not applicable	\$ 296.64
3.36	2	Igenico IPP350-11P1914A Payment Terminal	EA	Not applicable	\$ 741.60
3.37	2	Epson C31CB25A8791 receipt printer with power supply	EA	Not applicable	\$ 1,255.78
3.38	2	Brother Ruggedized RJ-4030	EA	Not applicable	\$ 1,186.56
3.39	2	Hewlett-Packard LV3000 Pole Display 7" Video with USB Connector, Dark Grey	EA	Not applicable	\$ 395.52
3.40	2	TrippLite USB Hub	EA	Not applicable	\$ 148.32
3.41	2	TrippLite UPS 500VA 280W UPS	EA	Not applicable	\$ 177.98
3.42	2	Fargo HDP5600 ID Card Printer & Encoder	EA	Not applicable	\$ 4,885.29
3.43	2	Fargo DTC1250e	EA	Not applicable	\$ 3,255.62
3.44	2	Fargo HDP8500 ID Card Printer & Encoder	EA	Not applicable	\$ 9,702.60
3.45 Tier 1	2	coin vault	EA	1-10	\$ 1,282.23
3.45 Tier 2	2	coin vault	EA	11-20	\$ 1,165.67
3.45 Tier 3	2	coin vault	EA	21+	\$ 1,059.70
3.46 Tier 1	2	coin hopper	EA	1-10	\$ 1,165.17
3.46 Tier 2	2	coin hopper	EA	11-20	\$ 1,059.25
3.46 Tier 2	2	coin hopper	EA	21+	\$ 962.95
3.47 Tier 3	2	VENDstation Door Alarm	EA	1-10	\$ 58.08
3.47 Tier 3	2	VENDstation Door Alarm	EA	11-20	\$ 52.80
3.47 Tier 3	2	VENDstation Door Alarm	EA	21+	\$ 48.00
3.48 Tier 4	2	MEI SCR Rebuild	EA	1-10	\$ 1,155.00
3.48 Tier 4	2	MEI SCR Rebuild	EA	11-20	\$ 1,339.80
3.48 Tier 4	2	MEI SCR Rebuild	EA	21+	\$ 1,607.76



PRICE SECTION 4 – FARE MEDIA

Item No.	SOW Ref.	Description	Unit	Unit Price
		Fare Media		
4.01	7	Contactless Extended-use Smart Cards (including training and test cards)	EA	\$ 0.87

PRICE SECTION 5 – OPERATIONS AND MAINTENANCE SUPPORT SERVICES (O&M)

Item No.	SOW Ref.	Description	Unit	Unit Price
Year 1 O&M – Recurring Software License Renewals and Maintenance Fees				
		Annual Software License Renewal & Maintenance Fee – Invoiced annually at the beginning of the license term		
5.01a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Renewal to Agreement in Attachment C)	YR	\$ 316,800.00
		Annual Subscription Renewal – Invoiced annually at the beginning of the subscription term		
5.01b	8	Shareplex Subscription Agreement (Renewal to Agreement in Attachment D)	YR	\$ 129,999.60
		Monthly Software Maintenance – Invoiced monthly at the end of the maintenance term		
5.01c	8	INIT Software Maintenance Agreement (Renewal to Agreement in Attachment B)	MO	\$ 12,391.35
		Monthly Software License Renewal – Invoiced monthly at the end of the license term		
5.01d	8	IBM Maas 360 Mobile Device Management License Agreement (Renewal to Agreement in Attachment E)	MO	\$ 960.00
Year 2 O&M – Recurring Software Licenses and Maintenance				
		Annual Software License & Maintenance – Invoiced annually at the beginning of the license term		
5.02a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	\$ 316,800.00
		Annual Subscription – Invoiced annually at the beginning of the subscription term		
5.02b	8	Shareplex Subscription Agreement (Attachment D)	YR	\$ 129,999.60
		Monthly Software Maintenance – Invoiced monthly at the end of the maintenance term		
5.02c	8	INIT Software Maintenance Agreement (Attachment B)	MO	\$ 12,639.18
		Monthly Software License – Invoiced monthly at the end of the license term		
5.02d	8	IBM Maas 360 Mobile Device Management License Agreement (Attachment E)	MO	\$ 960.00
Year 3 O&M – Recurring Software Licenses and Maintenance				
		Annual Software License & Maintenance – Invoiced annually at the beginning of the license term		



Item No.	SOW Ref.	Description	Unit	Unit Price
5.03a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	\$ 316,800.00
		Annual Subscription – Invoiced annually at the beginning of the subscription term		
5.03b	8	Shareplex Subscription Agreement (Attachment D)	YR	\$ 129,999.60
		Monthly Software Maintenance – Invoiced monthly at the end of the maintenance term		
5.03c	8	INIT Software Maintenance Agreement (Attachment B)	MO	\$ 12,891.96
		Monthly Software License – Invoiced monthly at the end of the license term		
5.03d	8	IBM Maas 360 Mobile Device Management License Agreement (Attachment E)	MO	\$ 960.00
		Year 4 O&M – Recurring Software Licenses and Maintenance		
		Annual Software License & Maintenance – Invoiced annually at the beginning of the license term		
5.04a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	\$ 316,800.00
		Annual Subscription – Invoiced annually at the beginning of the subscription term		
5.04b	8	Shareplex Subscription Agreement (Attachment D)	YR	\$ 129,999.60
		Monthly Software Maintenance – Invoiced monthly at the end of the maintenance term		
5.04c	8	INIT Software Maintenance Agreement (Attachment B)	MO	\$ 13,149.80
		Monthly Software License – Invoiced monthly at the end of the license term		
5.04d	8	IBM Maas 360 Mobile Device Management License Agreement (Attachment E)	MO	\$ 960.00
		Year 5 O&M – Recurring Software Licenses and Maintenance		
		Annual Software License & Maintenance – Invoiced annually at the beginning of the license term		
5.05a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	\$ 316,800.00
		Annual Subscription – Invoiced annually at the beginning of the subscription term		
5.05b	8	Shareplex Subscription Agreement (Attachment D)	YR	\$ 129,999.60
		Monthly Software Maintenance – Invoiced monthly at the end of the maintenance term		
5.05c	8	INIT Software Maintenance Agreement (Attachment B)	MO	\$ 13,412.80
		Monthly Software License – Invoiced monthly at the end of the license term		
5.05d	8	IBM Maas 360 Mobile Device Management License Agreement (Attachment E)	MO	\$ 960.00



Item No.	SOW Ref.	Description	Unit	Unit Price
Year 6 O&M – Recurring Software Licenses and Maintenance				
		Annual Software License & Maintenance – Invoiced annually at the beginning of the license term		
5.06a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	\$ 316,800.00
		Annual Subscription – Invoiced annually at the beginning of the subscription term		
5.06b	8	Shareplex Subscription Agreement (Attachment D)	YR	\$ 129,999.60
		Monthly Software Maintenance – Invoiced monthly at the end of the maintenance term		
5.06c	8	INIT Software Maintenance Agreement (Attachment B)	MO	\$ 16,681.05
		Monthly Software License – Invoiced monthly at the end of the license term		
5.06d	8	IBM Maas 360 Mobile Device Management License Agreement (Attachment E)	MO	\$ 960.00
Year 7 O&M – Recurring Software Licenses and Maintenance				
		Annual Software License & Maintenance – Invoiced annually at the beginning of the license term		
5.07a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	\$ 316,800.00
		Annual Subscription – Invoiced annually at the beginning of the subscription term		
5.07b	8	Shareplex Subscription Agreement (Attachment D)	YR	\$ 129,999.60
		Monthly Software Maintenance – Invoiced monthly at the end of the maintenance term		
5.07c	8	INIT Software Maintenance Agreement (Attachment B)	MO	\$ 13,954.67
		Monthly Software License – Invoiced monthly at the end of the license term		
5.07d	8	IBM Maas 360 Mobile Device Management License Agreement (Attachment E)	MO	\$ 960.00
Year 8 O&M – Recurring Software Licenses and Maintenance				
		Annual Software License & Maintenance – Invoiced annually at the beginning of the license term		
5.08a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	\$ 316,800.00
		Annual Subscription – Invoiced annually at the beginning of the subscription term		
5.08b	8	Shareplex Subscription Agreement (Attachment D)	YR	\$ 129,999.60
		Monthly Software Maintenance – Invoiced monthly at the end of the maintenance term		
5.08c	8	INIT Software Maintenance Agreement (Attachment B)	MO	\$ 14,233.77
		Monthly Software License – Invoiced monthly at the end of the license term		
5.08d	8	IBM Maas 360 Mobile Device Management License	MO	\$ 960.00



Item No.	SOW Ref.	Description	Unit	Unit Price
		Agreement (Attachment E)		
Year 9 O&M – Recurring Software Licenses and Maintenance				
		Annual Software License & Maintenance – Invoiced annually at the beginning of the license term		
5.09a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	\$ 316,800.00
		Annual Subscription – Invoiced annually at the beginning of the subscription term		
5.09b	8	Shareplex Subscription Agreement (Attachment D)	YR	\$ 129,999.60
		Monthly Software Maintenance – Invoiced monthly at the end of the maintenance term		
5.09c	8	INIT Software Maintenance Agreement (Attachment B)	MO	\$ 14,518.44
		Monthly Software License – Invoiced monthly at the end of the license term		
5.09d	8	IBM Maas 360 Mobile Device Management License Agreement (Attachment E)	MO	\$ 960.00
Year 10 O&M – Recurring Software Licenses and Maintenance				
		Annual Software License & Maintenance – Invoiced annually at the beginning of the license term		
5.10a	8	Oracle Enterprise Edition License with Advanced Security Maintenance Agreement (Attachment C)	YR	\$ 316,800.00
		Annual Subscription – Invoiced annually at the beginning of the subscription term		
5.10b	8	Shareplex Subscription Agreement (Attachment D)	YR	\$ 129,999.60
		Monthly Software Maintenance – Invoiced monthly at the end of the maintenance term		
5.10c	8	INIT Software Maintenance Agreement (Attachment B)	MO	\$ 14,808.81
		Monthly Software License – Invoiced monthly at the end of the license term		
5.10d	8	IBM Maas 360 Mobile Device Management License Agreement (Attachment E)	MO	\$ 960.00
System Operations and Maintenance – Invoiced at the end of the service month				
5.12	8	Year 1 – System Operations and Maintenance	MO	\$ 125,261.94
5.13	8	Year 2 – System Operations and Maintenance	MO	\$ 177,800.48
5.14	8	Year 3 – System Operations and Maintenance	MO	\$ 181,930.09
5.15	8	Year 4 – System Operations and Maintenance	MO	\$ 186,198.23
5.16	8	Year 5 – System Operations and Maintenance	MO	\$ 190,612.72
5.17	8	Year 6 – System Operations and Maintenance	MO	\$ 195,180.58
5.18	8	Year 7 – System Operations and Maintenance	MO	\$ 199,909.23
5.19	8	Year 8 – System Operations and Maintenance	MO	\$ 204,805.37
5.20	8	Year 9 – System Operations and Maintenance	MO	\$ 209,879.78
5.21	8	Year 10 – System Operations and Maintenance	MO	\$ 215,140.13



Item No.	SOW Ref.	Description	Unit	Unit Price
5.22	8	Year 11 – System Operations and Maintenance	MO	\$ 222,754.66
Year 1 - System Hosting				
5.24a	3&8	Mobile Payment System hosting	MO	\$ 3,063.00
5.24b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	\$ 71,492.60
Year 2 - System Hosting				
5.25a	3&8	Mobile Payment System hosting	MO	\$ 3,138.00
5.25b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	\$ 71,493.60
Year 3 - System Hosting				
5.26a	3&8	Mobile Payment System hosting	MO	\$ 3,215.88
5.26b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	\$ 71,494.60
Year 4 - System Hosting				
5.27a	3&8	Mobile Payment System hosting	MO	\$ 3,215.88
5.27b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	\$ 73,524.80
Year 5 - System Hosting				
5.28a	3&8	Mobile Payment System hosting	MO	\$ 3,311.44
5.28b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	\$ 73,524.80
Year 6 - System Hosting				
5.29a	3&8	Mobile Payment System hosting	MO	\$ 3,394.22
5.29b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	\$ 73,524.80
Year 7 - System Hosting				
5.30a	3&8	Mobile Payment System hosting	MO	\$ 3,479.08
5.30b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	\$ 77,201.00
Year 8 - System Hosting				
5.31a	3&8	Mobile Payment System hosting	MO	\$ 3,566.06
5.31b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	\$ 77,201.00
Year 9 - System Hosting				
5.32a	3&8	Mobile Payment System hosting	MO	\$ 3,655.21
5.32b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	\$ 77,201.00
Year 10 - System Hosting				
5.33a	3&8	Mobile Payment System hosting	MO	\$ 3,746.59
5.33b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	\$ 81,061.10
Year 11 - System Hosting				
5.34a	3&8	Mobile Payment System hosting	MO	\$ 3,566.06
5.34b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	\$ 81,061.10
Year 12 - System Hosting				
5.35a	3&8	Mobile Payment System hosting	MO	\$ 3,936.26
5.35b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	\$ 81,061.10
Year 13 - System Hosting				
5.36a	3&8	Mobile Payment System hosting	MO	\$ 4,034.67
5.36b	3&8	INIT Back Office, Test Facility, and Website hosting	MO	\$ 85,114.10



Item No.	SOW Ref.	Description	Unit	Unit Price
Software Escrow Services including cost for escrow company				
5.39		Year 1 – Level 1 Software Escrow	YR	\$ 25,968.00
5.40		Year 2 – Level 1 Software Escrow	YR	\$ 25,968.00
5.41		Year 3 – Level 1 Software Escrow	YR	\$ 25,968.00
5.42		Year 4 – Level 1 Software Escrow	YR	\$ 25,968.00
5.43		Year 5 – Level 1 Software Escrow	YR	\$ 25,968.00
5.44		Year 6 – Level 1 Software Escrow	YR	\$ 25,968.00
5.45		Year 7 – Level 1 Software Escrow	YR	\$ 25,968.00
5.46		Year 8 – Level 1 Software Escrow	YR	\$ 25,968.00
5.47		Year 9 – Level 1 Software Escrow	YR	\$ 25,968.00
5.48		Year 10 – Level 1 Software Escrow	YR	\$ 25,968.00

PRICE SECTION 6 – SOFTWARE LICENSES

Item No.	SOW Ref.	Description	Unit	Unit Price
Software Licenses and Subscriptions – Initial software license/subscription purchase – Invoiced in full at the time of purchase				
6.01	3	Oracle Enterprise Edition with Advanced Security & Maintenance	LS	\$ 2,440,540.00
6.02	3	Shareplex Subscription & Professional Setup Services	LS	\$ 313,234.20
6.03	3	IBM Maas 360 Mobile Device Management	LS	\$ 35,285.00

HOURLY[†] RATES FOR CHANGES PER SECTION 1 ARTICLE 4

Item No.	Description	Unit	Unit Price
AS.01a	Senior Project Manager	HR	\$ 230.00
AS.01b	Project Manager	HR	\$ 190.00
AS.02	Systems Engineer (Sr)	HR	\$ 230.00
AS.03	Systems Engineer (Mid)	HR	\$ 190.00
AS.04	Systems Engineer (Jr)	HR	\$ 155.00
AS.05	Software Engineer (Sr)	HR	\$ 230.00
AS.06	Software Engineer (Mid)	HR	\$ 190.00
AS.07	Software Engineer (Jr)	HR	\$ 155.00
AS.08	Technician	HR	\$ 135.00

END CONTRACT PRICING

[†] Agreed upon hourly rates (applicable to CY 2017) shall automatically adjust on an annual basis according to the BLS Consumer price index (CPI) from the end of the prior year.



MILESTONE PAYMENT SCHEDULE

RTA/RP 0119-17
Milestone and Partial Payment Schedule

		DESIGN					DEPLOYMENT/ DELIVERY OF PRODUCT				TRANSITION	TESTING			FINAL TESTING AND CLOSEOUT		TOTAL
Item No.	Contract Price	PMP	CDR	PDR	FDR	PAT	1st 25%	2nd 25%	3rd 25%	Final 25%	ngORCA SoR	SIT	FIT	Pilot	SAT	FSA	TOTAL
IMPLEMENTATION SERVICES																	
Program and Contract Mgmt																	
M-1.01	\$3,735,467.80	\$186,773.39	\$186,773.39	\$373,546.78	\$373,546.78	\$373,546.78					\$373,546.78	\$373,546.78	\$373,546.78	\$373,546.78	\$560,320.17	\$186,773.39	\$3,735,467.80
UI/UX Consulting																	
M-1.01a	\$694,212.00	\$34,710.60	\$173,553.00	\$173,553.00	\$173,553.00							\$34,710.60	\$34,710.60	\$34,710.60	\$34,710.60		\$694,212.00
M-1.01b	\$271,743.00	\$13,587.15	\$67,935.75	\$67,935.75	\$67,935.75							\$13,587.15	\$13,587.15	\$13,587.15	\$13,587.15		\$271,743.00
M-1.01c	\$113,818.00	\$5,690.90	\$28,454.50	\$28,454.50	\$28,454.50							\$5,690.90	\$5,690.90	\$5,690.90	\$5,690.90		\$113,818.00
M-1.01d	\$149,042.00	\$7,452.10	\$37,260.50	\$37,260.50	\$37,260.50							\$7,452.10	\$7,452.10	\$7,452.10	\$7,452.10		\$149,042.00
M-1.01e	\$98,504.00	\$4,925.20	\$24,626.00	\$24,626.00	\$24,626.00							\$4,925.20	\$4,925.20	\$4,925.20	\$4,925.20		\$98,504.00
M-1.01f	\$103,404.00	\$5,170.20	\$25,851.00	\$25,851.00	\$25,851.00							\$5,170.20	\$5,170.20	\$5,170.20	\$5,170.20		\$103,404.00
M-1.01g	\$134,340.00	\$6,717.00	\$33,585.00	\$33,585.00	\$33,585.00							\$6,717.00	\$6,717.00	\$6,717.00	\$6,717.00		\$134,340.00
Installation and Transition Services																	
M-1.02	\$546,189.70		\$54,618.97	\$218,475.88	\$273,094.85												\$546,189.70
M-1.03	\$732,701.36		\$36,635.07	\$73,270.14	\$73,270.14							\$366,350.68			\$146,540.27	\$36,635.07	\$732,701.36
M-1.04	\$63,307.96			\$6,330.80	\$6,330.80	\$12,661.59	\$9,496.19	\$9,496.19	\$9,496.19	\$9,496.19							\$63,307.96
P-1.05a				10%	10%	20%	15%	15%	15%	15%							100%
P-1.05b				10%	10%	20%	15%	15%	15%	15%							100%
P-1.05c				10%	10%							80%					100%
P-1.07a				10%	10%	20%	15%	15%	15%	15%							100%
P-1.07b				10%	10%	20%	15%	15%	15%	15%							100%
P-1.07c				10%	10%							80%					100%
P-1.08a				10%	10%	20%	15%	15%	15%	15%							100%
P-1.08b				10%	10%	20%	15%	15%	15%	15%							100%
P-1.08c				10%	10%							80%					100%
P-1.09a				10%	10%	20%	15%	15%	15%	15%							100%
P-1.09b				10%	10%	20%	15%	15%	15%	15%							100%
P-1.09c				10%	10%							80%					
Testing																	
M-1.10	\$404,197.56											\$202,098.78			\$141,469.15	\$60,629.63	\$404,197.56
SYSTEM HARDWARE DESIGN																	
Back Office Applications																	
M-2.01	\$905,117.89		\$45,255.89	\$90,511.79	\$90,511.79							\$633,582.52				\$45,255.89	\$905,117.89
M-2.02	\$1,292,571.72		\$64,628.59	\$129,257.17	\$129,257.17							\$904,800.20				\$64,628.59	\$1,292,571.72
M-2.03	\$100,702.64		\$5,035.13	\$10,070.26	\$10,070.26							\$70,491.85				\$5,035.13	\$100,702.64
M-2.04	\$197,763.05		\$9,888.15	\$19,776.31	\$19,776.31							\$138,434.14				\$9,888.15	\$197,763.05
M-2.05	\$61,247.94		\$3,062.40	\$6,124.79	\$6,124.79							\$42,873.56				\$3,062.40	\$61,247.94
M-2.06	\$774,417.30		\$38,720.87	\$77,441.73	\$77,441.73							\$542,092.11				\$38,720.87	\$774,417.30
M-2.07	\$180,955.06		\$9,047.75	\$18,095.51	\$18,095.51							\$126,668.54				\$9,047.75	\$180,955.06
M-2.08	\$104,630.00		\$5,231.50	\$10,463.00	\$10,463.00							\$73,241.00				\$5,231.50	\$104,630.00
M-2.09	\$37,119.32		\$1,855.97	\$3,711.93	\$3,711.93							\$25,983.52				\$1,855.97	\$37,119.32
M-2.10	\$275,539.44		\$13,776.97	\$27,553.94	\$27,553.94							\$192,877.61				\$13,776.97	\$275,539.44
Externally Sourced Applications																	
M-2.11	\$717,815.96		\$35,890.80	\$71,781.60	\$71,781.60							\$143,563.19	\$179,453.99		\$143,563.19	\$71,781.60	\$717,815.96
M-2.12	\$231,901.62		\$11,595.08	\$23,190.16	\$23,190.16							\$46,380.32	\$57,975.41		\$46,380.32	\$23,190.16	\$231,901.62
M-2.13	\$367,257.90		\$18,362.90	\$36,725.79	\$36,725.79							\$73,451.58	\$91,814.48		\$73,451.58	\$36,725.79	\$367,257.90
Field Device and Equipment Software																	
M-2.14	\$100,063.17		\$5,003.16	\$10,006.32	\$10,006.32							\$37,523.69	\$37,523.69				\$100,063.17
M-2.15	\$49,182.12		\$2,459.11	\$4,918.21	\$4,918.21							\$18,443.30	\$18,443.30				\$49,182.12
M-2.16	\$136,953.24		\$6,847.66	\$13,695.32	\$13,695.32							\$51,357.47	\$51,357.47				\$136,953.24
M-2.17	\$287,396.52		\$14,369.83	\$28,739.65	\$28,739.65							\$107,773.70	\$107,773.70				\$287,396.52
API Development																	

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Milestone and Partial Payment Schedule

M-2.18	\$37,119.32		\$1,855.97	\$3,711.93	\$3,711.93							\$13,919.75	\$13,919.75				\$37,119.32
System Integration Services																	
M-2.19	\$117,258.84		\$5,862.94	\$11,725.88	\$11,725.88							\$23,451.77	\$41,040.59		\$17,588.83	\$5,862.94	\$117,258.84
M-2.21	\$63,607.28		\$3,180.36	\$6,360.73	\$6,360.73							\$12,721.46	\$22,262.55		\$9,541.09	\$3,180.36	\$63,607.28
M-2.22	\$146,449.36		\$7,322.47	\$14,644.94	\$14,644.94							\$29,289.87	\$51,257.28		\$21,967.40	\$7,322.47	\$146,449.36
M-2.23	\$107,978.76		\$5,398.94	\$10,797.88	\$10,797.88							\$21,595.75	\$37,792.57		\$16,196.81	\$5,398.94	\$107,978.76
M-2.24	\$46,398.40		\$2,319.92	\$4,639.84	\$4,639.84							\$9,279.68	\$16,239.44		\$6,959.76	\$2,319.92	\$46,398.40
M-2.25	\$90,770.88		\$4,538.54	\$9,077.09	\$9,077.09							\$18,154.18	\$31,769.81		\$13,615.63	\$4,538.54	\$90,770.88
M-2.27a	\$128,564.84		\$6,428.24	\$12,856.48	\$12,856.48							\$25,712.97	\$44,997.69		\$19,284.73	\$6,428.24	\$128,564.84
Transit Payment Application																	
M-2.28	\$61,492.40		\$3,074.62	\$6,149.24	\$6,149.24							\$12,298.48	\$21,522.34		\$9,223.86	\$3,074.62	\$61,492.40



SECTION 09 – CONTRACT PROJECT SCHEDULE

Milestone	Date	Liquidated Damages Amount Reference
Project Management Plan (PMP)	Milestone delivery date agreed to at the project level	n/a
Conceptual Design Review (CDR)	Milestone delivery date agreed to at the project level	n/a
Preliminary Design Review (PDR)	Milestone delivery date agreed to at the project level	n/a
Final Design Review (FDR)	Milestone delivery date agreed to at the project level	n/a
PAT	Milestone delivery date agreed to at the project level	n/a
Deployment/Delivery of Product First 25%	Milestone delivery date agreed to at the project level	n/a
Deployment/Delivery of Product Second 25%	Milestone delivery date agreed to at the project level	n/a
Deployment/Delivery of Product Third 25%	Milestone delivery date agreed to at the project level	n/a
Deployment/Delivery of Product Final 25%	Milestone delivery date agreed to at the project level	n/a
System of Record	Milestone delivery date agreed to at the project level	n/a
SIT	Milestone delivery date agreed to at the project level	n/a
FIT	Milestone delivery date agreed to at the project level	n/a
Factory Acceptance Testing	November 30, 2020	Section 04 A
Pilot	Milestone delivery date agreed to at the project level	n/a
SAT	Milestone delivery date agreed to at the project level	n/a
BRT Stations II and Fleet Expansion I	January 1, 2022	Section 04 B 1
East Link Extension	January 1, 2022	Section 04 B 2
Decommissioning of Legacy ORCA system	December 31, 2022	Section 04 C
Final System Acceptance	December 31, 2022	Section 04 D
BRT Stations III and Fleet Expansion II	January 1, 2023	Section 04 B 3
Lynwood Link Extension	June 1, 2023	Section 04 B 4
Federal Way Link Extension and Redmond Link Extension	December 1, 2023	Section 04 B 5
BRT Stations IV and Fleet Expansion III	January 1, 2024	Section 04 B 6



****Portions of this Contract are marked confidential and are subject to the Public Disclosure process described herein.****

**Contract No. RTA/RP 0119-17 Systems Integrator for next generation
ORCA**

INIT Innovations in Technology, Inc.

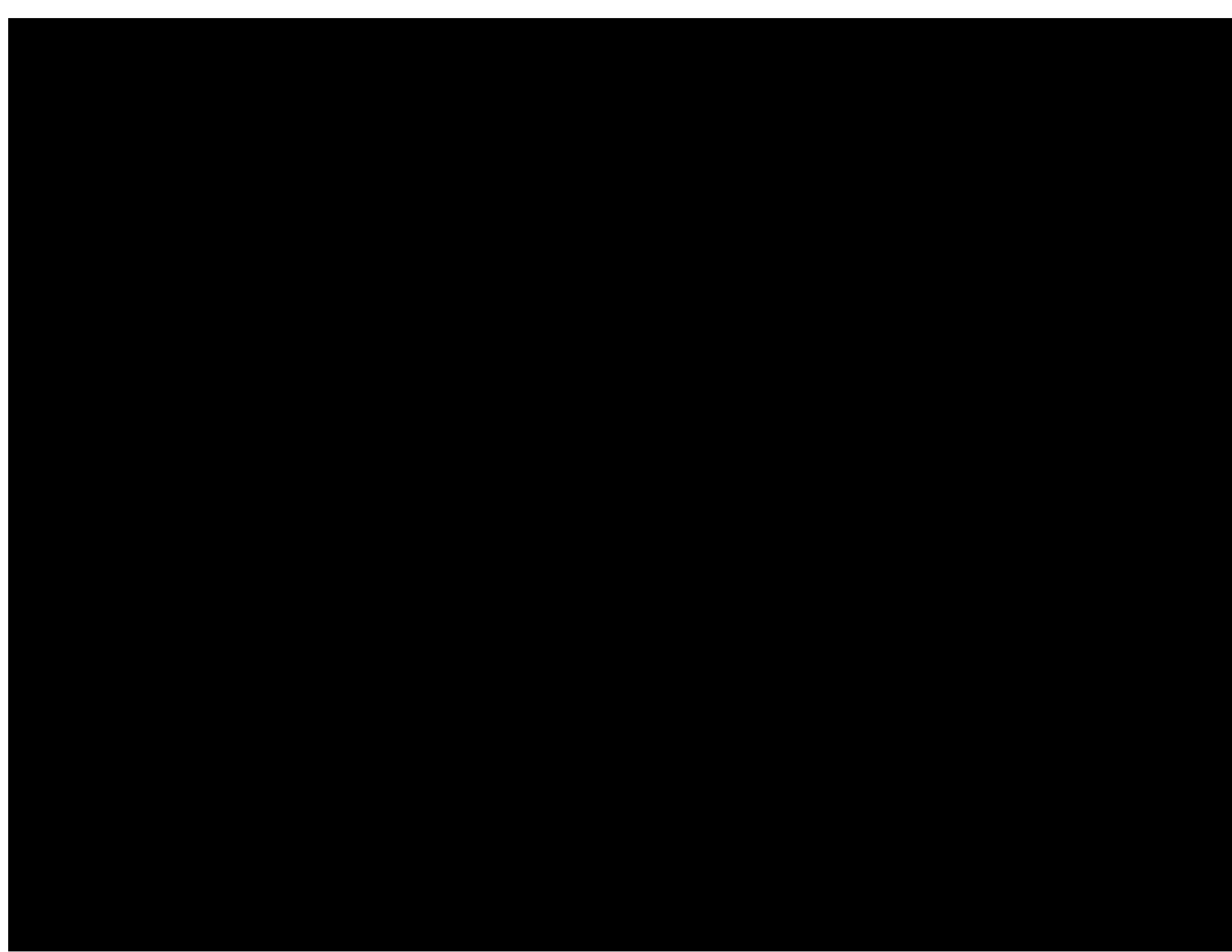
VOLUME 2 OF 2

SECTION 10 – CONTRACTOR’S NEGOTIATED PROPOSAL SUBMITTAL

The following documents are included and incorporated into this Agreement:

- Final negotiated price sheet dated August 29, 2018
- Proposal Addendum No. 2 dated August 17, 2018
- Proposal Addendum No. 1 dated July 23, 2018
- Revised Proposal dated June 8, 2018

Final negotiated price sheet dated August 29,2018



Revised Proposal Addendum
Addressing Specific Clarifications

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

August 17, 2018



init

The Future of Mobility

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Confidentially Statement

The sections in this document contain trade secret information that provides a business advantage to INIT over competitors. All sections in this document are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating this RFP response and third parties retained by the agency who have been retained to assist in evaluation of this RFP response and then only to the extent they agree to abide by this limitation.

Proposal Addendum No. 1 dated July 23, 2018



INIT Innovations in Transportation, Inc.

424 Network Station
Chesapeake, Virginia 23320
Phone (757) 413-9100
Fax (757) 413-5019
<http://www.initusa.com>

rstaib@initusa.com
direct: (757) 615-8500

July 23, 2018

Attn. Ashley Bowman, Agency Agreements Analyst
Sound Transit Procurement and Contracts Division
401 S. Jackson Street
Seattle WA 98104-2826

RE: RFP No. RTA/RP 0119-17 – Cover Sheet and Declaration of Revision

Dear Ms. Bowman:

INIT is pleased to provide you with the latest version of our Revised Proposal, dated July 23rd 2018, in the form of an Addendum. The information contained in the Addendum supersedes the information contained in the Revised Proposal that was submitted on June 8th 2018.

We appreciate the valuable feedback that the ngORCA agencies have provided to INIT which has allowed us to improve our offer and to respond to the weaknesses/deficiencies, and clarifications that Sound Transit provided to INIT on June 28th.

Additionally, we have provided a revised Price Proposal document which reflects modifications to our system design and scope of work and INIT has also provided comments and/or counter-language in response to the redlined Agreements previously provided by INIT and it is attached the Addendum as Attachment C.

We remain excited about the prospect of working with the ORCA agencies to deliver the ngORCA project on time and on budget. We are convinced that the agencies will be amazed at the functionality and flexibility of our best-in-class fare collection solutions and the capabilities of our company.

As a complete ITS solutions provider to Public Transit Agencies worldwide, INIT is uniquely qualified to provide Sound Transit and the ORCA member agencies with a comprehensive electronic fare collection system with unmatched flexibility, reliability, and speed. The combined capabilities of INIT's technology and the strength, experience, and local support that our Seattle based Project Team will bring to the Puget Sound Region is truly unique and we look forward to demonstrating this to Sound Transit and the ORCA member agencies in the coming months .

Yours Sincerely,

Roland Staib
President and CEO

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1. Body of Revised Proposal

2. Revised Sections 2.7.2.4.5-6 -
Integration and System Acceptance
Testing

3. Revised TAB 10 - ORCA Commercial
Legal Items - rev 23-JUL-2018

4. Revised Section 07 INIT Standard
Software License (EULA)

5. Revised Price

6. Revised Form 3B

**Systems Integrator for Next Generation ORCA
Request for Proposal (RFP)**

No. RTA/RP 0119-17

Addendum Submitted 07/23/2018

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Revised Proposal Addendum
addressing
Weaknesses/Deficiencies, and Clarifications

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

July 23, 2018



init

The Future of Mobility

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Revised Proposal dated June 8, 2018



1. Technical Proposal of INIT's Account Based Open Architect System

2. Methodology and Approach to Implementation and Operation and Maintenance Services

3. Extensive Experience and History of Innovation in Transit Technology

4. Knowledge and Recent Experience of Key Individuals

5. Price

6. Value Added Features or Capabilities

7. Commitment to and Compliance with Equal Employment Opportunity Law

8. Outreach Efforts and Commitment to Small Businesses and DBEs

9. Appendices (Appendix 1 – Resumes, Appendix 2 – Required Forms, and Capability Conformance Matrix Tab 1 and Tab 2)

10. ORCA Commercial Legal Terms
Software License Information
Draft Maintenance Agreement

**Systems Integrator for Next Generation ORCA
Request for Proposal (RFP)
RFP No. RTA/RP 0119-17
Submitted 06/08/2018**



INIT Innovations in Transportation, Inc.

424 Network Station

Chesapeake, Virginia 23320

Phone (757) 413-9100

Fax (757) 413-5019

<http://www.initusa.com>

rstaib@initusa.com

direct: (757) 615-8500

June 8, 2018

Attn. Ashley Bowman, Agency Agreements Analyst

Sound Transit Procurement and Contracts Division

401 S. Jackson Street

Seattle WA 98104-2826

RE: RFP No. RTA/RP 0119-17 – Cover Sheet and Declaration of Revision

Dear Ms. Bowman:

INIT is pleased to provide you with our Revised Proposal #2 to be the System Integrator for the ngORCA Program and to collaboratively develop, build, and test the best solution for the Region.

We appreciate the valuable Sound Transit feedback that allowed us to improve our offer. This Revised Proposal #2 supersedes the previously revised proposal submitted by INIT Innovations in Transportation on March 23rd 2018. All changes are clearly marked per the revised proposal submittal instructions. I hereby declare the text in the revised proposal that is not marked as changed has not been changed, and if it has the text of the last revised proposal prevails.

Additionally, we have provided a revised Price Proposal document which reflects modifications to our system design and scope of work. We have also included a cross reference which identifies the specific sections of the Proposal which have been revised.

We remain excited about the prospect of working with the ORCA agencies to deliver the ngORCA project on time and on budget. We are convinced that the agencies will be amazed at the functionality and flexibility of our best-in-class fare collection solutions and the capabilities of our company.

INIT was founded in 1983 with the goal of providing Intelligent Transportation Systems (ITS) to Public Transit Agencies. INIT Inc. (USA) was incorporated in the Commonwealth of Virginia in 1999 to serve the North American market. The INIT group of companies has never changed ownership. Many of our original employees are still working at INIT; giving us unmatched insight into the deployment of all types of transit oriented ITS projects. INIT has deployed over 50 electronic fare collection systems to transit agencies around the world and every day millions of transit riders pay for their public transit rides using INIT supplied technology.

This Project will be led by INIT's Pacific Northwest team, who recently delivered a state of the art, open payment, account based fare collection system to TriMet and its regional partners in Portland,

Oregon. The regional HOP FastPass system, which Sound Transit recently visited, was implemented on schedule and on budget and publicly launched on July 17, 2017. Recently the HOP FastPass system recorded its one millionth smartcard tap. The system already supports open payments through Android and Apple smartphones and is the first in the world to support virtual closed loop cards through Android Pay and soon through Apple Pay!

The system that INIT proposes to Sound Transit will accept agency issued smart cards as well as credit, debit and smartphone payments. All financial transactions will be processed – end to end - in less than ½ second. The technology is complex but to the end-user it will be simple and easy to use and appear to work like “magic”.

“Any sufficiently advanced technology is indistinguishable from magic.” Noted Author and futurist Arthur C. Clarke

When fully delivered by 2021, this INIT integrated system will provide ORCA’s customers with convenient, flexible, and secure fare payments and will allow for the introduction of new payment options as they become available. We will implement a service-proven, modular system, leveraging industry leading COTS applications. The design follows principles of open architecture which will permit the next generation ORCA system to evolve as technology changes. As an added bonus INIT is proposing advanced value added features such as open payments and fare capping at no additional charge to Sound Transit.

INIT’s system will be designed specifically to respond to the goals that were specified in your RFP. An experienced Project Team will deliver this most technically advanced and service proven AFC solution within the project timeline. INIT has assembled a team of employees with deep industry experience and thorough leadership expertise, as well as an ecosystem of experienced and very well qualified subcontractors, all aligned with the organizational structure defined in your RFP. The key project management and the technical staff as well as a software development group will be located at INIT’s Seattle facilities.

INIT has proposed Amy Gardner as the Lead Project Manager. Amy has previous knowledge of the legacy ORCA system and has most recently worked with INIT as the Project Manager responsible for the delivery of the TriMet “HOP Fastpass” system. Amy has the unique experience of working with both card-based and account-based fare collection systems. She will be responsible for guiding project resources and the schedule through the duration of the project.

Thomas Schaich, the proposed Lead Project Engineer, has deep technical knowledge of AFC systems and worked with Amy to successfully deliver the Portland “HOP Fastpass” system in 2017. Thomas is well known and respected in the industry and was recently recognized as a “Top 40 under 40” by Mass Transit magazine.

INIT is proposing David Steigleiter as the Project Systems Engineer. As the primary architect of INIT’s Online Validation module, MOBILEvario, David has substantial expertise in the engineering and core technical components of the INIT back office system and was very much involved in the TriMet HOP Fastpass” project implementation. David will be relocating to Seattle from INIT’s German HQ and will be the lead engineer responsible for the project specific software development.

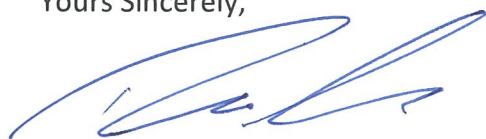
These key project positions are augmented by highly talented and dedicated technical and project professionals, with extensive AFC experience, who have successfully implemented AFC systems worldwide. For more details and background on the team see Tab 4 “Knowledge and Experience of Key Individuals”.

Our local Seattle office team – lead by Eric Linxweiler, Regional Director and Contract Representative – has an established presence in the area. This gives us a complete understanding of the regional transit system and the Pacific North West. Your single point of contact will be Jim Hicks, Director of Business Development for Western North America, also associated with our Seattle office. Jim can be reached at 757-413-9100 ext. 314 or at jhicks@initusa.com.

Our UBI number is 602-407-922 and Federal Tax ID Number is [REDACTED].

As a complete ITS solutions provider to Public Transit Agencies worldwide, INIT is uniquely qualified to provide Sound Transit and the ORCA member agencies with a comprehensive electronic fare collection system with unmatched flexibility, reliability, and speed. The combined capabilities of INIT's technology and the strength, experience, and local support that our Seattle based Project Team will bring to the Puget Sound Region is truly unique and we look forward to demonstrating this to Sound Transit and the ORCA member agencies in the coming months .

Yours Sincerely,



Roland Staib
President and CEO

Legend:	
mandatory	This weakness must be addressed as defined in the scope of work in order to be considered for award.
high priority	This weakness is considered high priority and is weighted accordingly in the evaluation of your firm's proposal. Further priority is indicated with bold text.
	More detail has been added to the existing weakness or it is a new weakness.

Notes:

- Comments that are stricken are no longer considered a weakness or deficiency
- Some weaknesses/deficiencies are no longer included in this list as indicated by the evaluation tracking number. Those comments are no longer considered weaknesses or deficiencies so they are not included in this document.

Evaluation Tracking Number	Revised Proposal Reference (Proposer completes this column)	Original Proposal Reference	Weakness	Capability and/or RFP Submittal Requirement Reference	Attention
Evaluation Criterion 1 - Technical Proposal					
1. Security:					
4	Federated Identity Services are certainly a possibility; however are not called out for in the RFP. INIT is happy to discuss adding to the SOW	Tab 1, 143	It appears that mobileVARIO is controlling the creation and management of users. Is that something that can be part of a federated identity service? Or is it built in as a core part of mobileVARIO? A. Clarify if there are federated identity services included in the proposal (and price).		
2. Integration:					
7	Tab 1, section 1.4.3.4	Tab 1, 58	Uncertain that the scope of the Legacy ORCA back office, paratransit, vanpool, onboard integration, WSF , and other integrations are fully realized. Very minimal details. Proposal fails to provide diagrams, approach, and the "how". A. Vanpool: it appears that there is still a misunderstanding about vanpool fare payment. B. WSF: i. Proposal fails to demonstrate an understanding of integrating with WSF in general, and specifically, validators not going through the API manager (does that include WSF validators?). ii. Clarify how the POS integration is handled since the capabilities are different than the handheld validator capabilities. iii. Address the "WSF Transaction Data" table in SOW section 3.3.5.	Evaluation Criterion 1, Submittal Requirement 4	high priority
8	Tab 1, section 1.4.3.5	Tab 1, 53	Is there any issue with a real-time data flow into DARE? A. Question does not appear to be addressed B. DARE is not just historical data until there are not more Legacy devices on the system. C. Proposal describes a data flow on an hourly basis, if needed, which is not real-time.	General	
12	Removed DataWarehouse language from Tab 1, section 1.8.2	Tab 1, 138	The Proposal diagram shows an SI provided reporting and Data Warehouse included that is not DARE. Unclear what is the scope and purpose of this reporting component. A. Are there any efficiencies to be had by removing the INIT proposed data warehouse and replacing it with DARE? B. Revised proposal pg. 186 - bulleted list includes INIT provided MOBILEvario data warehouse and reporting tools.	General	
15	Tab 1, section 1.4.3.9	Section 1.4.3.9	The Proposed description of the vanpool requirement or business need is incorrect. (Duplicates #7 above.) Specifically, the statement "...the Vanpool customers will be able to perform single ride transactions with flexible prices on the website and mobile app." This functionality would be used to pay a monthly fee.	SOW Section 3.3.10	
3. Other System Architecture:					
17	Provided more information in Tab 2, section 1.7.2	Tab 1, 65	Concern that Proposer may be underestimating the (complex) customization and development required for some of the system modules, such as: ATP, CRM, Financial Mgmt., Websites, and Mobile Apps. Clarify the percentages listed in the proposal. A. Mobile Apps: See detailed comments below.	Evaluation Criterion 1, Submittal Requirement 8.e.ix	
19	Tab 1, 1.4.2.5.1	Tab 1, 37	VMW "stretched virtual cluster", as proposed, is still a hosted solution, but the proposal does not describe the key advantages of this solution over a fully cloud based infrastructure. A. Revised proposal response could be more detailed re: the private vs. public hosted cloud; not fully justified.	General	

24	Tab 1, section 1.4.1.6 Tab 5 Price Notes 1.01	Section 1.4.1.6	The proposed UI/UX subcontractor's scope of work is not yet defined, even though a price has been provided. The subcontractor's generic approach has been provided with nothing specific to next-generation ORCA. Proposal fails to describe how the firm would apply the methodology to the next-gen ORCA project. A. Concern that involvement of dev teams (Marathon, EBROS, Bytemark, and INIT) are not early and consistent enough in the process. Tab 1, 24 B. The proposed UI/UX solution is filled with jargon, does not emphasize the needs of the project, and doesn't justify the premium level cost.	SOW Section 3.1.6	high priority
26	Tab 1, 1.4.2.5.1	Tab 1, 37	Concern that two proposed data centers are not very far apart geographically. A. Hanging statement on pg. 63 "...as well as..."	SOW Section 3.2.6, 3.2.6-5	
4. Vending Machines:					
27	Tab 1, section 1.4.1.9.3 corrected	Tab 1, 19-21	Proposal sections: 1.4.1.7, 1.4.1.9 (including subsections), and 1.4.1.10 fail to describe how Init's devices meet the capabilities listed in the SOW. These sections are just paraphrasing what is in the SOW. A. There appears that there's a typo on pg. 39 that the PROXmobile 3 is only "IP34" rated; elsewhere in the text it's IP54 for the validator. Concern that the proposed validators do not meet the capability of IP65 rating (SOW Capability 3.1.9.3-1).	Evaluation Criterion 1, Submittal Requirement 2.b.	
31	Tab 1, section 1.6.3.2.1.	Tab 1, 92	Proposed FFVM is 10" taller than current; considering the difference in height, can the pedestal be modified and still comply with the ADA? A. Concern that if the hood is removed, the light functionality would be impacted.	General	
33	Tab 1, section s 1.6.3, 1.6.3.8.1	Tab 1, 70	It appears that the proposed FFVM and LFVMs have been in place for 10 and ~16 years, respectively. Concern that some fundamental technology updates would be needed. How much longer until these versions are obsolete? A. It is unclear if the proposed VMs meet the mandatory capabilities of SOW Section 3.1.1. Provide a product roadmap and vision/direction for the proposed VM offerings over time. B. Concern that VM operating system is based on Windows Embedded Standard 7 which is end of life in 2025.	SOW Mandatory Capability 3.1.1-1	mandatory
34	Tab 1, section 1.6.3.2.3,	Tab 1, 98 and 104	User interface uses buttons and a touch screen. Concern that the buttons are unnecessary and could lead to extra maintenance needs, and difficulty of use to the customer. How is the UI configured and how is content managed? A. Concern that the UI design would be too limited because of the number of buttons and how the buttons are configured with the tariff management tool.	SOW Capability 4.5.2.2-1, 3.1.6-3, and Section 3.1.7	
35	Conformance Matrix 4.5.2.5-10 and 3.1.9.3-1	Capability Conformance Matrix Tab 2: pg 11 and 90	Card reader is IP34 and VM as a whole is IP54. A. Proposal Pg. 152 - It appears that the credit card reader is the only IP34 rated component, but elsewhere in the proposal it states that the coin, bill, and card slot were also less than IP65 rated (SOW Capability 3.1.9.3-1).	SOW Capability 4.5.2.5-10 and 3.1.9.3-1	
39	Tab 1, section 1.6.3.2.2	Tab 1, 96	Can the VMs be upgraded to dispense LU? A. The proposal can be upgraded, but what is the level of effort to swap paper tickets with LU?	SOW Section 4.5 narrative	
5. Customer Service Equipment:					
41	Tab 1, section Chapter 1.6.4.1	Tab 1, 110-115	Proposal appears to fail to respond to Submittal Requirement 6: no info on firmware/OS of CST components, lacking drawings of components, hardware tech specs, communications interfaces of components, etc. A. Concern that certain components are no longer supported by the manufacturer, such as: the LV3000.	Evaluation Criterion 1, Submittal Requirement 6	
42	Tab 1, section 1.6.4.1 and Tab 5 Price Form should agree	Tab 1, 111- 113	Mail center EU printer not proposed. A. The quantities of proposed printers listed in the proposal text, Table pg. 173, and price sheet are all different. B. Unclear why there are three printers proposed.	Evaluation Criterion 1, Submittal Requirement 6	
43	Tab 1, section 1.6.4.1 and 1.6.4.1. 11	Tab 1, 111 and 113	There appears to be a conflict in the Proposal regarding the bank card processing unit. (IPP320 or IPP350) It appears that the IPP350-11P1914A was included in an end of life notice and support ends in 2021.	SOW Capability 3.1.1-1	mandatory
44	referred to Tab 1 section 1.6.4.1.14 for explanation of offering three different printers for you different use cases	Capability Conformance Matrix Tab 2: pg 70 and 77	CSO CST printer holds 200 cards, not 250; clarify mail center vs. CSO printers.	SOW Capability 4.4.2.10-6, 4.4.4.3-10	

45	Tab 1, section 1.6.4.2.4	Tab 1, 117	CST will have a native application, not a web-based application. • Need more understanding of the benefits of this approach. • Need more information about the proposed interface (Salesforce/Mobile/Vario). • It appears that the CSO does not use Salesforce and only uses the CST application. Concern that the CST application does not have all of the functionality listed in the SOW without using Salesforce.	SOW Capability 4.4.2.1-5	
49	Added section to Tab 1 - 1.6.4.1.14 Addressed document scanner in Tab 1 section 1.6.4.1.8 Added datasheets to section 1.6.4.1.12 and 1.6.4.1.13	Tab 1, 111- 113	Mobile environment EU printer does not appear to be mobile; too big and unfit for the purpose. Document scanner is also large for a use in mobile environment. More info about the proposed printers.	SOW Section 4.4 and Capability 4.4.1-8, 4.4.1-3	high priority
54	Added section to Tab 1 - 1.6.4.1.14	Tab 1, 110-111	The Proposal's breakdown of equipment needed isn't correct, as the approach seems to assume that each "mail center printer" has a separate computer. Concerned about quantities and pricing based on table provided. A. Except for what is described in the printers weakness above.		
6. Other Onboard/Wayside Field Devices and Fare Media:					
55	Tab 1, section 1.4.2 provided INIT's description of how we meet the capabilities listed in Section 2 titled "System Architecture" of the SOW Added PROXmobil3 and TOUCHit2 datasheet to Tab 1, section 1.4.1.9.2 Described PROXmobil3 SAM and USB interfaces in section 1.4.1.9.2 Added VENDstation datasheet to Tab 1 section 1.4.1.9.3	Tab 1, 19-21	Proposal sections: 1.4.1.7, 1.4.1.9 (including subsections), and 1.4.1.10 does not show how the proposed devices meet the capabilities listed in the SOW. These sections are just paraphrasing what is in the SOW. Please provide hardware spec - SAMS USB, etc.	Evaluation Criterion 1, Submittal Requirement 2 and 6	
56	Added PROXmobil3 and TOUCHit2 datasheet to Tab 1, section 1.4.1.9.2	Tab 1, 78	Proposal provides limited technical specs., no drawings, and no info on software/firmware for proposed validators or DDU.	Evaluation Criterion 1, Submittal Requirement 6	
58	INIT addressed these weaknesses in Tab 1, section 1.6.5		Clarification: What is the roadmap for all hardware end of life and future innovation? What happens when the devices become obsolete? Is it part of the O&M plan?	General	
60	Tab 1, section 1.8.2.2	Tab 1, 141	Proposed validation flow doesn't appear to represent products, just purse value. "Adequate funds in account?" A. It appears that the proposal was revised but there is concern about acting on products before knowing the fare.	SOW Section 6.2.1	high priority
62	Tab 1, section 1.5.1.4 Tab 1, section 1.6.5. The "years in service" numbers refer to industry proven design that explicit device version	Tab 1, 68	All proposed equipment in this section have been in service for a long time (9 yrs., 13 yrs., 10 yrs., 16 yrs., etc.), which is good, but concerned about innovation. Concern that they would be in need of some fundamental technology updates—how much longer until these proposed versions are obsolete?	SOW Mandatory Capability 3.1.1-1	mandatory
63	Conformance Matrix 3.1.9.3-1	Conformance Matrix Tab 2, 3.1.9.3-1	Concern that the proposed wayside validator does not meet specs (only IP54) classified —the fact that it's made it ~1 year on platforms in Portland does not prove that it meets the specs to withstand 12 years for next gen ORCA.	SOW Capability 3.1.9.3-1 and 3.1.4-4	
64	Conformance Matrix 4.2.2.4-3	Conformance Matrix tab 2 - pg 53	Onboard Validator 802.11 does not appear to support ac/r.	SOW Capability 4.2.2.4-3	
66	Tab 1, section 1.6.1.1		Proposal does not appear to address anti-card-clash collision. A. Provide a proof statement. B. It is unclear how anti-card-clash collision is done.	SOW Capability 4.2.4-7	
68	Tab 1, section 1.6.1.2.5	Tab 1, 84	Clarifications: How is the UI configured? How is content managed? Can agencies make changes? A. Need further detail about how the agencies make changes.	SOW Section 3.1.6	
7. External Apps (Web/Mobile):					
72	Conformance Matrix 5.3-12	Conformance Matrix Tab 2, pg 114	It appears that the proposed inspection and validation app will read/validate barcodes instead of NFC (and won't write to cards) due to presumed unsecure devices. This solution is unacceptable, especially with the inconsistent customer experience for validation. A. Concern that the proposed solution is not the same validation as onboard and wayside validators (read: NFC) as described in the SOW.	SOW Capability 5.3-2 SOW Capability 5.3-12	mandatory

73	Conformance Matrix 5.3-12	Conformance Matrix Tab 2, pg 114	<p>It appears that mobile device inspection and validation must be done using barcode scanning for virtual cards. Could this change in the future?</p> <p>A. Capability Conformance Matrix states that barcodes are being used. It is understood that meeting this capability wouldn't be service-proven, however, a clear discussion of what the proposed technical solution to this capability is missing from the body of the proposal.</p> <p>B. Concern that barcodes would be a difficult customer experience.</p>	SOW Capability 5.3-12	
74	Tab 1, section 1.7.3	Tab 1, 125-126	<p>The Proposal sections on mobile-and-agency apps are pretty silent on a proposed technology solution; it focused mostly on design process.</p>	Evaluation Criterion 1	
75	Provided more information in Tab 2, section 2.7.2	Section 1.7.2	<p>Bytemark's mobile ticketing experience is not a NFC based mobile ticketing model and doesn't include account management; not particularly relevant.</p> <p>A. The proposal emphasizes experience with visual ticketing rather than the NFC mobile credential as stated in the SOW. The proposal fails to demonstrate an understanding of the relevant capabilities.</p> <p>B. Concern that the proposal states the proposed solutions are in service as of today, i.e. Flamingo Fares Tampa Bay and The Rapid mobile app. The proof of concept approach cited on pg. 197 is not supported by Apple and will not be acceptable for the next gen ORCA program.</p> <p>C. It is unclear what the proposed account management functions are, and how they would work for the customer. The proposed account management solution does not appear to meet the capabilities.</p> <p>D. Proposal needs detailed information about the mechanics for use of the proposed mobile credential using Android (Google Pay) and iOS (Apple Pay). It appears that this section was authored by Bytemark, and it appears that there is a lack of understanding of the SOW Capability 5.2-13.</p> <p>E. Proposed iOS solution references "in the future" and "if applicable" which is concerning since the SOW anticipates this functionality to be available at integration.</p>	<p>Evaluation Criterion 1, Submittal Requirement 5.2</p> <p>SOW Section 5.2</p> <p>SOW Capability 5.1-16</p>	
76	1.7	Tab 1, 126	<p>Proposal fails to discuss design, testing, integration effort, or deployment for mobile apps; proposal provides limited information given about "how".</p> <p>A. The revised proposal appears to address the concern for customer mobile app, but not the other proposed agency mobile app.</p>	Evaluation Criterion 1, Submittal Requirement 7.a.	high priority
77	1.7	Tab 1, 125	<p>The proposed mobile app does purchasing of passes and it appears that it only generates flash pass style of tickets (as in the current KCM/ST pilot). This needs more detail around the NFC-to- validator style of mobile ticketing credential.</p>	Evaluation Criterion 1, Submittal Requirement 7.a.iii and SOW Section 5.2 and Capability 5.1-16 and 5.2-13	
79	Tab 1, section 1.7.1.2	Tab 1, 124	<p>Some of the provided URLs from page 124 are not functional.</p> <p>1. Unable to access PDX institutional website.</p> <p>2. Unable to access Grand Rapids institutional website. Provided login fails.</p>	General	
80	1.7	Section 1.7	<p>The entire Proposal section 1.7 is light on detail. There is some detail about the approach and methodology but not enough actual content about how the website or apps will work or look.</p> <p>A. The revised proposal fails to provide adequate detail about the agency mobile app.</p>	General	
82	Tab 1, section 1.7. added sentence: . INIT owns the Intellectual Property rights of the proposed Marathon Solution. Software Licensing Information.xlsx : The document " Marathon - Umbraco License.doc" is attached to this list.	Tab 1, 128	<p>Clarify the intended IP ownership for the website. It appears that it belongs to INIT.</p> <p>A. Licensing information needs to be verified. Marathon - Umbraco License.doc was not provided as listed in the Licensing Information spreadsheet.</p>	SOW Section 3.1.11	
84	Provided more information in Tab 2, section 2.7.2		<p>References to mobile app development with Bytemark mentions ticketing but is silent on the customer management application; concern about the Proposer's understanding of the SOW.</p> <p>A. Concern still exists for the revised proposal; refer to relevant weaknesses above.</p>	SOW section 5.2	high priority

302	1.7		Concern that the Bytemark proposal does not take into consideration the Regional nature of the next gen ORCA program. Much of the description is based on the KCM/ST mobile ticketing app.		
8. Finance, Central Payment, Tariff Management:					
88	Tab 1, section 1.8.2.10.1	Financial Management	Overall, limited detail provided in Proposal on how implementation of Sage would be provided including financial reconciliation and clearing and settlement between agencies. A. Proposal pg. 251, bullet no. 4 - manual verification before transactions are cleared - need more information about the proposed manual verification process.	Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	
89	Tab 1, section 1.8.2.3	Tab 1, 140	The Proposal states that the proposed Fare Management module is "very comprehensive", but the Proposal lacks enough detail. Proposal fails to discuss the ability to configure to fare policies as presented in the current state in the SOW. For example, route-based, peak fares, overrides for zone fares, transfers, etc. It's difficult to tell how the proposed solution would handle the Region's specific fares. The proposed tool seems like it was built to be customizable, but doesn't inspire confidence that it's compatible with the needs.	Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	high priority
90	1.8.2.10.1 1.8.2.10.2	Tab 1, 150	The Proposal appears to have missed the mark on apportionment. Proposal only discusses splitting revenue once a month (presumably from a simple formula?) and pays no attention to ORCA's per-trip apportionment or regional complexities. Need more clarity in this section. A. Needs additional detail about per-trip apportionment.	Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e. SOW Section 6.2.5.2-1	mandatory
92	1.8.2.10.1	Tab 1, 150	Although the Proposal capability matrix 6.2.5.2-2 indicates conformance, Proposer makes no reference to it in the Proposal's narrative. Proposal states the revenue split rules will be defined together during systems specifications; however, the revenue apportionment rules are defined by the Region. The proposed example of daily revenue recognition of a monthly pass is very simplistic in terms of the SOW requirements for revenue apportionment. A. Needs additional detail about per-trip apportionment.	Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e. SOW Capability 6.2.5.2-2	
9. Customer Relationship Management:					
98	Tab 1, section 1.8.3	Tab 1, 152	Proposal section is lacking in detail on many areas (and was only one page long). Needs more detail such as samples of what the interface looks like, and more detail of user interface and capabilities.	Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	
102	Tab 1, section 1.8.3		Proposer does not appear to have prior experience integrating a COTS CRM application into their solution.	SOW Capability 3.1.1-4	
105	Tab 1 Section 1.8.3	Section 1.8.3	Mandatory capability 6.3.1-1 states, "...The CRM application will be a COTS solution, and there is a preference for a web-based CRM solution. " Proposer has marked that it complied in the compliance matrix, however "INIT's proposed solution integrates several applications into a single CRM application. The core applications of this solution are INIT MOBILEvario and Salesforce." A. Unlear that the proposed CRM provides central management for all customer data.	SOW Capability 6.3.1-1	mandatory
106	1.8.3.1.8	Section 1.8.3	There are short-comings in the description of the way INIT proposes to integrate Salesforce into the overall solution. A. Example: Proposal section 1.8.3.1.8 is unclear as to which interface CRM users and enhanced customers will be using to achieve the bulk upload.	SOW Section 6.3	
113	Tab 1, section 1.8.3 and subsections	Section 1.8.3	Proposal fails to [fully] address how enhanced customer account management will be implemented under their model.	SOW Section 6.3.3	
10. Other Back Office Applications:					
114	Tab 1, section 1.8.2.3	Tab 1, 143 Section 1.8.2.3.2	Clarification: Expand on the capabilities of MX and confirm that it will be able to support current fare rules without customization. A. Proposal lacks information about zones and overriding.	Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	
115	Tab 1, section 1.8.2.10.1	Section 1.8.2.2	Proposed ATP – Information in this section generally limited and needs more detail.	Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	

116	Increased to 40%, Tab 1, section 1.5.1.3 Tab 5, Price Forms, Line 2.05	Tab 1, 148 and 162	Proposed FMM – Not enough information provided (though repeated in two places). A. More information was given about the proposed Fare Media Management application; however, there are concerns that the proposed solution will need additional development (more than 10% as proposed on Tab 1, pg. 101).	Evaluation Criterion 1, Submittal Requirement 8.a. & 8.e.	
118	Removed all references to cold list	Tab 1, 141	Proposed ATP – Concern about the use of "white list" in ATP – don't have assurance of need for checking a positive list and concerned it would fill up local memory and slow down transaction time. A. Clarify use of "cold list" in Section 2.13.2.5.7; is this different from the removed white list concept?	General	
124	Tab 1, section 1.8.2.4	Tab 1, 143	Clarification: mobile VARIO seems to be controlling the creation and management of users. Is that something that can be part of a federated identity service? Or is it built in as a core part of mobile VARIO? A. Proposal pg. 243 the second sentence starting with "Azure AD..." is confusing. B. Proposal pg. 244 diagram: Clarify the benefits of Azure AD vs. hosted AD that is in a nearby network.	SOW Capability 3.1.14.2-10	
303	1.8.7.6		Need more detailed information about Operational Queries - concern that there is an impression that since DARE exists, there is no responsibility for any reporting.		
Evaluation Criterion 2 - Methodology and Approach to Project Management and Operations and Maintenance					
11. Training:					
132	Tab 2, section 2.7.2.5.4 Tab 2 Table 2-4 updated	Tab 2, 46	Unclear on how all agencies will receive training; Proposal sometimes only proposes one class for all users. A. Table 2-4: need a definitions/legend/key B. What is the level of flexibility in the content and subject area of the courses? C. Concern that any class would only have one offering for a multi-agency environment.	SOW Section 2.5.4	
133	Added Tab 2 section 2.7.2.5.6	Table 2.3	SOW describes the need for online or e-learning training; table 2.3 – Is Power Point being proposed as the primary training tool? What is the proposed training methodology? How is the training plan going to be developed including online/e-learning?	SOW Section 2.5	high priority
136	Tab 2, section 2.9	Manual_MOBILE va rio_Tariff_Manag ement_1.0	Proposed tariff manual only mentions tickets. Proposed tariff manual does not appear to be relevant to the next gen ORCA system. (Monthly pass products included.)	SOW Section 2.5.2	
137	Tab 2, section 2.7.2.6.1 and 2.7.2.6.2	Section 2.5.2.5.7	Proposed manual content and format was so general as to not be illuminating and could not be properly evaluated. A. Proposal pgs. 99 and 102 - Concern that the sample manuals provided are not relevant to the proposed system.	SOW Section 2.6.1	
138	Tab 2, section 2.7.2.5.3	Tab 2, 46	List of users for Quick Reference Guides is too limited in detail; needs more detail, such as: financial management, wayside validator maintenance (only had VM maintenance), IT/Sys Admin tools, etc. (Table 2-4 should have a QRG.)	SOW Section 2.6.2	
12. Testing:					
141	Removed word "beta" from Tab 2, section 2.7.2.4.1 Modified Tab 2, sections 2.8.3 and 2.12.6. Gantt lines 222 & 223 & 230	Section 2.10.6	This section of the proposal introduces two new concepts of testing not covered in the testing section: alpha and beta. 1. In the description of the deployment (p.56) INIT introduces alpha and beta testing. This should have been covered in the testing section. What would an alpha test or beta test look like? What are the objectives? What is being tested? 2. The schedule does not include either alpha or beta testing. Schedule does include a 3 month pilot test in deployment. Assumptions about the test should have been included in the testing section. 3. What is the difference between a "beta test" and a "beta pilot test"?	General	
144	Tab 2, section 2.7.2.4.6	Section 2.5.2.4	General comment on testing section: Although there is some good content early in the testing section of the proposal, much of this section was poorly prepared and not informative. Parts of the Testing section are word for word from the SOW (see Functional Unit Testing, System Integration Test, Field Integration Test). This provides no illumination on the proposed test plan and strategy. A. Acceptance testing cannot begin before the pilot test is complete or when the INIT system becomes system of record. SOW Capability 2.4.6.1-1	SOW Section 2.4	mandatory
147	Tab 2, section 2.7.2.4.2.1		How is the test plan being developed and who is responsible for doing the development? A. Concern that the devs are the only input to the test scripts	SOW Section 2.4.2.1	

148	Tab 2, section 2.7.2.4.2	Tab 2, 37	Clarification: When would the inspection and test procedures be submitted to the agencies? Is it part of the Test Plan, 30d before test begins? What is the difference between the proposed procedures and test plan?	SOW Section 2.4.2.2	
149	Tab 2, section 2.7.2.4.5.3	Tab 2, 40-41	How would FIT accomplish full operational load with a minimum number of transactions for each component type? A. Unclear why minimum number of transactions is not a driver for FIT.	SOW Section 2.4.5.3	
13. Transition and Installation:					
151	Added Tab 2, section 2.8.5 Added Section 1.8.5 Tab 2, section 2.8.1 Added Section 1.8.5	Section 2.6	Actual details of the transition of deployment phase of the project are very sparse. This indicates a lack of understanding of the approach other than acknowledging that this will be a challenge. While the Proposal recognizes the critical nature of the transition, much information about aspects of the transition are not provided. The Proposal needs more thought and insight given to fare media transition, VM transition, public messaging, etc. Transition/Deployment A. The proposed integration with the Legacy ORCA VM back office is not an acceptable approach. This conflicts with the goals in the transition plan and affect price too much. The Legacy ORCA VMs are not integrated to ORCA using APIs. Transition/Deployment B. Need more information about proposed transition plan when it deviates from the SOW, especially with respect to WSF and the integration requirements. Transition/Deployment C. Proposal pg. 106, second paragraph: clarify the focus on KCM and CT are "first" not "only". Proposal pg. 114, field installation: Concern that the statement that the Agencies will install wayside validators conflicts with the SOW. See Clarification No. 4, item 6. Transition/Deployment D. Unclear why the proposal states that the incumbent vendor writing data to the credential would be a benefit for inspection.	Evaluation Criterion 2, Submittal Requirement 6	high priority
154	Tab 2, sections 2.10 and 2.13	Section 2.12	The proposed risk security solution is inadequate as a whole. A. A Performance Bond is proposed for performance risk from NTP through FSA. Clarify the amount of the proposed performance bond. B. A letter of credit is proposed for performance risk during O&M; however, proposer fails to propose the amount and terms of the letter. It is unacceptable to put off the negotiation of the amount and terms of the letter to any service level agreements. Sound Transit does not agree to pay any additional costs that are not negotiated at the time of contract. C. Propose a milestone payment schedule for lump sum payments based on SOW deliverables. D. It appears that the incorrect liquidated damages language was used for Section 04 Liquidated Damages.	See Toolbox for Risk Mitigation and Management for ideas about a risk security solution.	high priority
157	Gantt Line 170, 188, 235, 243, 246, 252, 255, 257 and 259 added	Tab 1, 63	The proposed Deployment tasks in the schedule are not well aligned to the transition phases described in the SOW. It is unclear if this Deployment phase actually includes the various transition phases, and what the expected timing of each phase is.	SOW Section 2.3.1.1	
158	Tab2 Updated: 1.7.2.3.1.1 1.7.2.3.1.2 1.7.2.3.1.3	Section 2.6.1	The proposed installation section is generally very vague and high-level and doesn't contain detail such as when installation is planned to occur (day/night shifts or weekday/weekend), and what the proposed pre-installation activities would be. A. There appear to be errors in the installation outline. B. Clarify: What is meant by CST and/or POS installation and configuration? C. Clarify assumptions for the proposed installation schedule. D. Proposal text appears to conflict with proposed schedule: states that the VMs would be installed after the wayside validators are installed, potentially in multiple passes?	SOW Section 2.3.2	
159	Updated Tab 2, sections 2.7.2.3.1.1 and 2.7.2.3.1.5		Proposal fails to identify how long installation would take. This information will be key in helping the agencies determine the feasibility of the schedule given that KCM will likely do their own installations. A. How long would it take if cabling work? It appears that the schedule assumes best case scenario only. B. Clarify: It appears that the Proposer has assumed that CT will use the INIT MDT and not an additional DDU without any price or project efficiency justification thereof. Also, it appears that the CT DDUs are on the price sheet, not MDTs.	SOW Section 2.3.2	

160	Gantt 247-254 extended	Tab 2, 63	Concern that the difficulties with transition are not fully realized with a proposed 9 month deployment schedule. A. 6 months for installation may not be sufficient	SOW Section 2.3.3	
161	Updated Tab 2, sections 1.7.2.3.1 and 1.7.2.3.5	Tab 2, 33	The proposed prototype installation for one week or more on "each vehicle type" doesn't indicate if buses would be in service, or how granular the type is. A. The vehicle information in the proposal appendix may not be granular enough to determine the number of prototypes needed. B. Provide assumptions for the number of prototypes needed. C. Clarify the table on pg. 2-49 - upper portion of the table	SOW Section 2.3.5	
162	Updated Tab 2, section 2.7.2.3.7	Tab 2, 34	Proposed onsite work requirements do not appear to acknowledge the different training required for each site.	SOW Section 2.3.6	
14. Operations:					
164	Tab 2, section 2.14.1	Tab 2, 65	Concerned about there being only a small team that is local during O&M. A. The proposal appears to be conflicting in places regarding local O&M staff. B. In the proposal, demonstrate how the relevant capabilities would be met, rather than simply stating compliance.	Evaluation Criterion 2, Submittal Requirement 12.a.	
165	Tab 2 Section 2.14 and sub sections	Section 2.12.3	Proposal fails to provide an estimated level of effort. A. In the proposal, demonstrate how the relevant capabilities would be met, rather than simply stating compliance.	Evaluation Criterion 2, Submittal Requirement 12.c.	
169	Compliance Matrix Tab 1 Requirement 8.2-11 Tab 2, section 2.14.2.1	Compliance Matrix 8.2-11	There appears to be a misunderstanding about the "warranty" period described in the SOW. A. Non-compliant to the SOW	SOW Capability 8.2-11	
172	Tab 2, section 2.14.2.1	Section 2.12.2.4	Proposal language omits operation and updates of mobile apps. A. Section 2.13.2.5.1 - First sentence - Concern that operating systems is not included in the list.	SOW Capability 8.5-6	
173	Tab 2, section 2.14 and sub sections Note that the quoted statement was removed in the previous submission	Section 2.13.7.1.1	"Only in very special cases on-site visits might be conducted to solve the problem." A. In the proposal, demonstrate how the relevant capabilities would be met, rather than simply stating compliance.	SOW Capability 8.7.2-3	
174	Tab 2, section 2.14 and sub sections Note that the quoted statement was removed in the previous submission	Section 2.13.7	In general, the noted response / resolution times are too slow and in person support is very limited as proposed. A. In the proposal, demonstrate how the relevant capabilities would be met, rather than simply stating compliance.	SOW Capability 8.7.2-3, 8.7.2-4	
176	Tab 2, section 2.14 and sub sections Note that the quoted statement was removed in the previous submission	Section 2.13.7.1.1.1	The proposal for this type of error is inadequate: the response times are too long and for this type of error; a qualified engineer should log in and diagnose the problem right away (not after 4 hours). The comments on timing for A1 apply here too A. In the proposal, demonstrate how the relevant capabilities would be met, rather than simply stating compliance.	SOW Capability 8.7.2-3, 8.7.2-4	
177	Tab 2, section 2.14 and sub sections Note that the quoted statement was removed in the previous submission	Section 2.13.7.1.1.3	Proposal includes "critical software error on a limited number of vehicles..." Accordingly, the response and correction times for these errors are inadequate as proposed. The agencies cannot pull even a limited number of vehicles out of service and await the next software update version. A. In the proposal, demonstrate how the relevant capabilities would be met, rather than simply stating compliance.	SOW Capability 8.7.2-3, 8.7.2-4	
178	Tab 2, section 2.14 and sub sections Note that the quoted statement was removed in the previous submission	Section 2.13.7.1.2.1	"If resolution is not possible within one (1) working day an engineer or technician will either remotely or on-site diagnose the problem." This is too long for a technician to remotely start to diagnose errors that have "significant impact on system". A. In the proposal, demonstrate how the relevant capabilities would be met, rather than simply stating compliance.	SOW Capability 8.7.2-3, 8.7.2-4	
179	Tab 2, section 2.14.1	Section 2.13.6	Proposed no on-site support. A. In the proposal, demonstrate how the relevant capabilities would be met, rather than simply stating compliance.	SOW Capability 8.7.2-3, 8.7.2-4, 8.12.2.5	
180	Tab 2, section 2.14	Tab 2, 68 through 70	Unclear who is responsible for doing day to day operations. It appears that the Proposer is planning to do a lot of the functions that the ROOT would be doing. No mention of the ROOT in this section which indicates confusion about roles and responsibilities of ROOT. Define software enhancements and upgrades. Clarify how this is reflected in price as well.	SOW Section 8.1	

182	Tab 2, sections 2.14.1 and 2.14.2.2	Section 12.2	Proposed "partnership with ROOT" seems limited to "ROOT does first line equipment maintenance/swaps" and "ROOT can call the INIT service desk". A. Per SOW section 8.1, the Agencies (not the ROOT) are providing 1st line equipment maintenance, in multiple places in the proposal. B. Proposal pg. 156 states that second line maintenance would be provided by INIT, however, SOW Section 8.8 describes the need for Sound Transit have first attempt at second line maintenance on VMs.	SOW Section 8.1	
185	Tab 2, section 2.14.2.1	Section 2.12.2.1	Model for the "central system a full disaster recover site is supplied with instantaneous mirroring to protect both ORCA data and operation." Confirm if this is the same site described in Section 2.12.13 Disaster Recovery.	SOW Section 8.11	
188	Tab 2, Section 2.14 and sub sections	Tab 2, 67 and 77	The services provided during the 1-year hardware and software warranty period need to be tied back to the warranty expectations of the SOW. A. In the proposal, demonstrate how the relevant capabilities would be met, rather than simply stating compliance.	SOW Section 8.2	
192	Tab 2, section 1.14.2.4	Section 2.12.2.4	Under Daily Operations the Proposal indicates that the Proposer will be reviewing warnings and error messages. Confirm they will also be taking action based upon those messages. A. Clarify if INIT will proactively take action when system identifies a problem without active reporting by the Region.	SOW Section 8.5	
195	Tab 2, Section 2.14 and sub sections	Tab 2, 77 and 80	The Proposal text states that service hours are extended to 24x7 for A1 errors only. Does that mean if it's A2 or lower, the Region shouldn't call? Who determines severity right away? A. In the proposal, demonstrate how the relevant capabilities would be met, rather than simply stating compliance.	SOW Section 8.7.2	
198	Tab 2, section 2.7.2.4.3	Tab 2, 73	If SI is hosting the Agency test facility, what kind of access will the Agencies have? A. Propose SI provided test facility option (with no assumption that it will be located in any Agency facility) as described in SOW Section 2.4.3. Include price.	SOW Section 8.9 SOW Section 2.4.3	
199	Tab 2, section 2.7.2.4.3	Section 2.5.2.4.3	The Proposal's agency test facility section is inadequate as it is a word-for-word regurgitation from the RFP. A. Review the proposed suggested test equipment breakdown per agency because it is confusing and appears to be somewhat incorrect.	SOW Section 8.9	
304	Tab 2, 1.14.2.4		Proposal pg. 148 references Honolulu.		
15. Project Management:					
200	Tab 2, section 2.7.2.2.1 Gantt lines 61, 75, 76, 100 and 101	Tab 2, 29 and 30	For the design review sessions involving all stakeholder groups, concern that a proposed one week for design review meetings underestimates the complexity, though there does appear to be some acknowledgement on page 54. A. Concern that two weeks may not be enough to workshop the two groups.	Evaluation Criterion 2, Submittal Requirement 10	
201	Refer to Tab 2, section 2.12.9, 2.12.10 and 2.12.11 for modified timeline	Tab 2, 57	Though the narrative may have caveated it, including DARE and the Retail Network in the high level schedule with dates that aren't relevant doesn't add any value and makes the Proposal section confusing. A. Section 2.10 and the Gantt chart are referenced and haven't been revised.	Evaluation Criterion 2, Submittal Requirement 10	
203	Tab 2, section 2.7.2.4.6.1 and 2.12, 1.12.6	Tab 2, 63	Not sure that full system acceptance can start as early or complete as fast as their schedule shows. A. See weakness # 144 B. Define "slack for improvement.	Evaluation Criterion 2, Submittal Requirement 10	
205	Tab 2, section 2.12.1 Gantt chart lines 66, 109, 110, 120, 164, 168 and 177	Section 2.10.9	The only noted dependent project in the schedule appears to be the agency wireless projects. Nice to see the date that Agencies should have their systems operational, but it appears to be missing two other big dependencies: WSF's EFS2 and KCM's MDT. A. High level timeline is blank	Evaluation Criterion 2, Submittal Requirement 10	
207	Tab 2, sections 2.4, 2.5.2.1.1 and 2.2	Sections 2.4 and 2.5.2.1.1. See also org chart in Section 2.2.	Proposes a project structure with an Executive Steering Committee and Steering Committee. The descriptions and roles of these committees are not clearly delineated and do not appear to match throughout the document.	Evaluation Criterion 2, Submittal Requirement 2	
208	Tab 2, sections 2.4; 1.10 and 2.7.2.1.3.5	Tab 2, 52	Identify the makeup of the proposed "INIT Project Management Team" that will be identified for Risk Management? The list doesn't appear to map directly to identified roles. A. Need clarification on the Risk Teams B. Table 2-2 should include all Risk Teams	Evaluation Criterion 2, Submittal Requirement 2 and 3	
210	Tab 2, sections 21.12 and 2.7.2.4.6.1	Schedule, Line 174	Concern that the proposed System Acceptance Test period is too short; proposed only 60 days without providing assurance that it would be feasible.	General	

213		Tab 2, 62	Proposed 40 days (calendar or business?) for training – perhaps the duration is too optimistic. Clarify expected level of effort. A. Proposed days (vs. duration) for training is unclear.	General	
214	2.5.2.1.1	Tab 2, 3	Unclear why the proposal inserts INIT executives into the Joint Board and Steering Committee? Clarify the purpose. What is the interaction? A. It appears that the proposed org chart was revised but proposal section 2.6.2.1.1 was not.	General	
220	Tab 2, section 2.7.2.1.3.3	Tab 2, 13	Traceability matrix appears to be built on Microsoft Excel spreadsheets. A. The region's experience using Excel as a traceability matrix has been problematic.	SOW Section 2.1.3.2	
226	Tab 2, section 2.7.2	Tab 2, 29	This section should reflect the approach to design described on 2-54 in schedule section regarding a phased approach (or two packages) to design review. A. Concern that the overarching design review and approvals is more linear than the individual document process described.	SOW Section 2.2	
Evaluation Criterion 3					
16. Firm Experience & History:					
228	1.7	Tab 3, 10	Concern that this project would be the first account-based multi-agency deployment of this magnitude for the Proposer. Of the referenced deployments of similar size, Birmingham-UK isn't multi-agency and is bus only. A. Green dots in the tables in Tab 1 are missing - used the track-changes version to evaluate.	Evaluation Criterion 3, Submittal Requirement 2	
230	Tab 1 1.7.3	Section 3.1.4	Missing references for E-BROS (listed in section 3.1.4 as a major subcontractor): o 1.7.3 – E-BROS was the partner least well described in methodology and citations. o E-BROS doesn't appear to have North American experience.	Evaluation Criterion 3, Submittal Requirement 3	
231	Tab 2, section 2.3	Tab 3, 26 through 28	It appears that INIT will have 3 4 projects underway (potentially) when this project begins, although 2 are to be completed 2018.	General	
232	Provided more information in Tab 2, section 2.7.2	Tab 3, 22 and 23	Bytemark's mobile ticketing experience is for a different style of mobile ticketing required by this SOW. Bytemark appears to lack experience developing-delivering an NFC based solution, only citing exp erience with barcode readers and visual verification.	General	high priority
233	Tab 3, sections 3.1.6 and 3.1.2 Tab 1, section 1.4.1.6 Tab 5 - Pricing	Tab 3	Overall concern with: o proposed UI/UX provider o PM competency o proposed customer mobile app sub	General	high priority
234	Tab 3, section 3.6.1	Tab 3	Concern with Proposers lack of experience working on platforms, BRT, rail stations that include VMs.	General	
235	Tab 3, section 1.1 added	Tab 3	It appears that INIT lacks experience with true multi-agency systems.	General	
237	Tab 2, section 2.2		Poor track record in the region of delivering on schedule (CAD/AVL).	Information gained from reference check.	
238	Tab 2, section 2.2		Historically hard to get the resources needed, especially with rotating PMs.	Information gained from reference check.	
239	Tab 2, section 2.2		Contract changes have been slow.	Information gained from reference check.	
240	Tab 2, section 2.2		Documentation has not been INIT's strength; training materials are critical.	Information gained from reference check.	
241	Provided more information in Tab 2, section 2.7.2		Bytemark products appear to lack innovation and polish.	Information gained from reference check.	high priority
242	Provided more information in Tab 2, section 2.7.2		Concern with Bytemark project management and ability to make schedule.	Information gained from reference check.	high priority
243	Tab 1, section 1.4.1.6	Tab 1, 16	The proposed third party UI/UX designer claims a UCD process, but in past projects has appeared to neglect the user.	Information gained from reference check.	high priority
305	Tab 2, section 2.11 Tab 1, section 1.4.1.6		Based on the major concerns cited about the proposed UI/UX subcontractor's (Anthro-Tech) firm experience and history and the other evaluation criteria, and should the concerns not be addressed, the Region would prefer a better choice for this portion of the work. Should an acceptable subcontractor not be proposed, the Region may choose to procure the UI/UX services separately. A. Describe how INIT would manage and monitor the work to ensure quality work of the proposed UI/UX subcontractor.		

306	Tab 2, section 2.11		<p>Based on the major concerns cited about the proposed customer mobile app subcontractor's (Bytemark) firm experience and history and the other evaluation criteria, should the concerns not be addressed, the Region would prefer a better choice for this portion of the work. Should an acceptable subcontractor not be proposed, the Region may choose to procure the customer mobile app services separately.</p> <p>A. Describe how INIT would manage and monitor the work to provide seamless integration and ensure quality work of the proposed mobile app subcontractor.</p>		
Evaluation Criterion 4					
17. Knowledge & Experience of Key Individuals:					
244	Tab 4, section 4.1.15	Tab 4	<p>Proposal fails to address proposed training staff experience.</p> <p>A. It appears that the project staff (technical resources) are proposed to perform the training; this is also in conflict with pg. 22.</p>	Evaluation Criterion 4, Submittal Requirement 2	
248	Tab 4, section 4.1.3.2	Tab 4	<p>Amy Gardner is proposed on the project at 100%, but it appears that she is currently the program manager on the HART project. The transition plan for her is unclear.</p> <p>A. Still unsure about the size of Amy's role at HART.</p>	General	
249	Tab 2, section 2.2.	Tab 4	<p>Concerns that the proposed Project Manager can drive the project from the SI side, adhering to schedule, pushing for adequate resources, and influencing rapid approvals. This program needs a strong PM, especially since across many INIT projects, PMs have rotated and often failed to meet expectations.</p>	Information gained from reference check.	high priority
250	Tab 2, section 2.7.2.1.3.1		Who is proposed to be the schedule advocate for this project?	General	
253	Tab 2, section 2.3 and 2.11		<p>Demonstrate the ability of the firm to dedicate more prioritized resources in emergency situations such as critical path schedule delay.</p> <p>A. Concern with the proposed firm's bench strength beyond the proposed key individuals.</p> <p>B. Describe how resources for this project would or wouldn't be impacted should new projects be awarded to INIT.</p>	Information gained from reference check.	high priority
254	Updated Table in Tab 2, sections 2.4 and 2.5		<p>Modify the table in the referenced submittal requirement as follows:</p> <p>Column 1: Name of Key Individual</p> <p>Column 2: Description of Key Individual's level of involvement in the Project</p> <p>Column 3: Percentage of Key Individual's total workload that this Project will comprise</p> <p>Column 4: Percentage of Key Individual's total working hours expected to be onsite* in Seattle</p> <p>*For this submittal requirement, onsite means being in the next gen ORCA program office. There will be at least five empty cubes (including a chair, desk, power, and guest Wi-Fi) dedicated to the SI.</p>	Evaluation Criterion 2, Submittal Requirement 3	
307	Tab 4, section 4.2		What is the transition plan for the other common proposed key individuals (Thomas Schaich, Dave Steigleiter) between TriMet and next gen ORCA? Concern that these key individuals proposed wouldn't be fully dedicated to the next gen ORCA project at NTP through FSA.		high priority
Evaluation Criterion 5					
18. Price:					
255	Tab 5, Price Forms Line 1.05 a,b,c. Line 107 a,b,c. Line 108 a,b,c. Line 109 a,b,c.	Line 1.05 and 1.06	Break out installation price, commissioning price, documentation price for clarity.		
259	Tab 1, section 1.8.5	Line 2.01 and 2.04	Price for the ATP and System Manager components suggests that they are not service proven. The price also seems very high.	SOW Section 3.1.1	

260	Tab 5, section 5.2, 2.11 Customer Mobile App Tab 5, Price Forms Lines 5.12 - 5.23 a Tab 5, section 5.2, 2.13 Customer Website	Line 2.11 through 2.13 Line 2.11 through 2.13 Line 2.11 through 2.13 Line 2.11 through 2.13	Prices proposed for the externally sourced applications vary widely. The Customer Management mobile app will definitely have more functionality than the agency applications but are the assumptions too low for both the agency apps? Need clarification. A. Explanation addressing this weakness mentions migration and integration with Bytemark which is not in scope; would this be a value add? B. Concern that the proposed Sound Transit app will be redesigned starting from the existing app instead of a "new" mobile app as described in the SOW. C. Concern that there is an assumed 1.5% transaction fee for mobile "ticketing" transactions in addition to the payment processing fee - seems to be a subscription fee setup when, per the SOW, the app design and development is a work-for-hire (not fully owned and requires further payment/additional cost - SOW Capability 7.2.2-7, 3.1.11-6) and next gen ORCA is responsible for the hosting. D. Proposed price for the website appears inadequate for the expected level of effort. Pricing assumptions are not provided.	SOW Section 5.2	high priority high priority high priority high priority
261	Tab 5, Price Forms Line 2.12 Tab 5, section 5.2, 2.12 Agency Mobile Apps	Line 2.12	For agency mobile app, how much will the price increase if we need NFC/Security to be a part of the solution – not just barcode?		
263	Tab 5, Price Forms, Line 2.19	Line 2.19	Four agency integrations appear to be priced, although there is a note stating CT is included like KCM. Need to clarify the Proposer's understanding of integration, including the fact that Sound Transit doesn't need a separate integration. A. Update the text to match the quantities on the price sheet and proposal pg. 12	SOW Section 3.3.3	
265	Tab 5, section 5.2, 2.19-2.27 System Integration Services	Line 2.21	The integration efforts for this line item seem very low. Concern that the integration efforts with WSF is not fully realized.		
267	Tab 5, Price Forms, Tiered Equipment Pricing	Line 3.11	TVM pricing assumes an even split of FFVM and LFVM. The agencies do not yet know the breakdown of VM quantities needed. Unclear of the price impact if assumed quantities are not purchased. A. Provide additional breakdown of price for order quantities less than the MOQ.		
269	Tab 5 Price Forms, Line 5.01	Line 5.01	SMA price overall seems to be high when compared to the Region's independent cost estimate and only appears to provide licensing fee assumptions without any other justification.		
273	Tab 5, Price Forms, Line 5.38 Tab 5, section 5.2 System Warranty	Line 5.38	Discussion is needed re: "Beneficial Use" A. The price sheet still mentions "beneficial use" - needs to match the system warranty section pg. 14		
274	Tab 5 Price Forms, Line 5.01	Line 6.01	Proposed software licensing fees seem high when compared to the Region's independent cost estimate. A. Licensing fees need to be broken down per license		
276	Tab 5, Section 5.2, System Software and Design	Tab 1, 168	Budgeted for 100 hours for reporting- is this included in the Program Management?		
280	Tab 5, Section 5.2, Items 2.05 and 2.06 Tab 5, Price Forms Line 2.24 Tab 5, section 5.2 (removed from scope)		Proposal does not provide adequate assumptions and explanations tied to proposed price line items. A. Confused about alternative solutions pricing - are they included or not? - still seems to be "options" B. Pg. 13 - The vending machine integration to the Vix Legacy back office system proposed in section 2.7.4 is not acceptable. (SOW Section 2.3.1 transition priorities - minimize transition-only software)	Evaluation Criterion 5, Submittal Requirement 2	high priority
308	Tab 1, section 1.4.1.6 Tab 5, Attachment A		Proposed price for UI/UX work is not fair and reasonable.		
Evaluation Criterion 6					
19. Value-added Features:					
283	Tab 6, section 6.11.2	Tab 6, 7	What is the cost and schedule impact to implement the "full" vanpool integration concept? A. Clarification: What would INIT propose as a solution to the full vanpool integration? See Appendix 1 of the RFP (Project Background and Ridership Data - Full Vanpool Integration pg. 1).	Evaluation Criterion 6, Submittal Requirement 2.b.	

285	Removed from Tab6	Tab 6, 8	Adhering to EMV/PCI standards: proposed as value-add but is already a component of the SOW. A. Remove from value-added section, and integrate it to the body of the proposal	SOW Capability 3.1.14.1-2, 4.2.1-3, etc.	
286	Removed from Tab6	Tab 6, 3 and 9	Dual chipped cards: proposed as value-add but is already a component of the SOW. A. Remove from value-added section, and integrate it to the body of the proposal	SOW Capability 7.2.2-4	
288	Removed from Tab6	Section 6.11.6	The proposed TriMet employee passes seem similar to the KCM cards described in the SOW. A. Remove from value-added section, and integrate it to the body of the proposal	SOW Capability 7.2.2-4	
289	Removed from Tab6	Tab 6, 3	API platform: proposed as value-add but is already a capability in the SOW. A. Remove from value-added section, and integrate it to the body of the proposal	SOW Section 3.3.2	
290	Removed from Tab6	Tab 6, 3	Equipment monitoring: proposed as value-add but is already a component of the SOW. A. Remove from value-added section, and integrate it to the body of the proposal	SOW Section 6.5	

Evaluation Criterion 7

20. Equal Employment Opportunity:

294	Tab 7, section 7.2.3	Tab 7, 2	Proposal fails to respond to submittal requirement 2.b.	Evaluation Criterion 7, Submittal Requirement 2.b.	
295	Tab 7, sections 7.2.2, 7.2.3 and section 7.3 This information is available upon request of your EEO office	Tab 7, 1	Detail is light in describing how EEO is complied to and fails to provide information about established EEO policy. A. Proposal states that EEO policy is confidential.	Evaluation Criterion 7, Submittal Requirement 2.c.	high priority

Evaluation Criterion 8

21. Outreach Efforts and Commitment:

297	no changes unless Eric has an idea	Tab 8	Unclear about the Proposer's approach and assistance for SBEs.	Evaluation Criterion 7, Submittal Requirement 2	
298	See Form 3B	Form 3B	Proposal fails to list total percentages Form 3B.	Form 3B	

Contract Negotiation

309	Software Licensing Information.xlsx added 3 columns for Licnsor, Licensee, Re-seller. "License executed/implemented in Project Phase. (Referencing the Proposed Program Schedule)"	Software Licensing Information	While the Software Licensing Information document is very thorough and clear, it fails to provide information about the license parties. For each license, provide the name of the Licensor and the Licensee. Also indicate if INIT is serving as a reseller.		
310	Software Licensing Information.xlsx added column "License executed/implemented in Project Phase. (Referencing the Proposed Program Schedule)"		For each third-party software license, provide information regarding which project phase the licenses would be established and executed.		
311	Tab 10 Standard Maintenance Agreement (new document)		Provide draft maintenance and support agreement for the EULA software in .doc format.		
312	Tab 2, section 2.13.2.2.3.2	Tab 2, section 2.13.2.2.3.2	Clarify the meaning of "primary support holder" with regard to warranty and support of third-party software.		
313	Tab 2, section 2.7.2.1.3.9	[Proposed] Systems General Conditions, Article 7.29	Describe how INIT is proposing to manage the establishment and negotiation of third-party software licensing. Who would be the proposed key individual with this task?		
314	There is no separate O&M agreement at this time.	Tab 2, section 2.13.2.4	Clarify if INIT expects there to be a separate Operations and Maintenance Agreement in addition to the Purchase Agreement, EULA, and any software maintenance and support agreements. If so, provide a draft copy in .doc format.		
315	Tab 2, section 2.7.2.7 (new section)	[Proposed] Systems General Conditions, Article 7.29	Clarify assumptions made about source code escrow, including Contractor's responsibility for costs related to source code escrow		

Technical Proposal of INIT's Account Based Open Architecture System

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal June 8, 2018



init

The Future of Mobility

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The sections listed below contain trade secret information that provides a business advantage to INIT over competitors. These sections are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

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1 INIT's Open Architecture, Account-Based AFC System

INIT is pleased to submit this technical proposal to Sound Transit in order to demonstrate how INIT meets and exceeds the capabilities stated in the next generation ORCA (ngORCA) RFP Scope of Work (SOW). As required by the RFP (Section 1.10.B), our proposal is in the order specified in Section 1.11.E.

The following chart illustrates which Evaluation Criteria submittal requirements corresponds to which proposal section.

Evaluation Criteria 1 Submittal Requirement	INIT Proposal Section (Tab 1)
1. Complete and submit Tab 2 of Proposal Form No. 1, Capability Conformance Matrix.	Appendix
2. Include a detailed narrative description of how the system architecture capabilities in the Scope of Work will be fulfilled. This section should also include the approach for providing and validating an account-based and open architecture system that will enable ease of integration for new partners, equipment and meet the capabilities of the Scope of Work	1.2 An Innovative, Open Architecture, Service-proven Account-based System
3. Include a chart that identifies the subcontractor firms that will be responsible for providing the products or services required by the Scope of Work	1.3 INIT's Highly-Qualified Subcontractor Team
4. Provide a description of the proposed system architecture (Scope of Work, Section 3) with supporting diagrams that clearly identify the following: a. Relationships between applications and devices in the proposed System b. Systems integration and open architecture Application Programming Interfaces (APIs) that will be used to exchange data between the different applications within the System c. The interface points of each element and the physical and logical communication standards utilized between applications within the System	1.4 INIT's Open Architecture System
5. Include a detailed description of how the proposed System conforms to the service- proven and other capabilities in the Scope of Work Sections 3 through 7, and, if applicable, clearly indicate whether or not the solution requires new development (and the extent of development required) or	1.5 A Service-Proven and Innovative Solution



Evaluation Criteria 1 Submittal Requirement	INIT Proposal Section (Tab 1)
<p>commercial-off-the-shelf (COTS) applications. Describe how the firm proposes to satisfy the service-proven capabilities and still be the innovative solution described in Scope of Work Section 1. For each furnished device that has been used in service, list public agencies or private organizations for which device has been supplied. Include the following information for each:</p> <ul style="list-style-type: none"> a. Agency or company name and contact person, b. Business address and phone number, c. Model number (and original equipment manufacturer, if applicable) of the module, d. Quantity of equipment provided, and e. Approximate number of years in revenue service 	
<p>6. Specifically, for Field Devices and Subsystems (Scope of Work Section 4):</p> <ul style="list-style-type: none"> a. Provide a detailed description of each of the following proposed devices, software, and associated mounting systems <ul style="list-style-type: none"> i. Onboard Validator ii. Driver Display Unit iii. Wayside Validator iv. Vending Machine v. Customer Service Terminal b. For each device listed in 6.a. above: <ul style="list-style-type: none"> i. Provide drawings that show dimensions and materials used ii. Describe supported functionality as it relates to the capabilities in Scope of Work Section 4 iii. Describe the proposed customer interfaces for each device iv. Describe the communication interfaces provided v. Describe the interchangeability of modules and assemblies among devices and ease of maintaining the components of the system and the expected reliability of the equipment 	<p>1.6 INIT's High-Reliability Field Devices and Subsystems</p>
<p>7. Specifically for Website and Mobile Application (Scope of Work Section 5):</p> <ul style="list-style-type: none"> a. Provide your proposed subcontractor's development methodology for the following items: <ul style="list-style-type: none"> i. Customer account website ii. Content management system iii. Customer mobile app iv. Agency mobile apps 	<p>1.7 INIT's User Friendly and Intuitive Website and Mobile Applications</p>

Evaluation Criteria 1 Submittal Requirement	INIT Proposal Section (Tab 1)
<ul style="list-style-type: none"> b. Provide previously designed website URLs and credentials to websites developed by the proposed provider. c. Describe how the proposed UI/UX solution provider will design a common user experience across multiple platforms. d. Provide a draft licensing agreement(s) for items in this section. 	
<p>8. Specifically, for Back Office (Scope of Work Section 6):</p> <ul style="list-style-type: none"> a. Describe in detail each component of the proposed back office including details such as: <ul style="list-style-type: none"> i. System hardware ii. Interfaces iii. Operating system iv. Databases v. Applications software vi. Supported functionality b. Identify any proprietary hardware, interfaces or software utilized, indicate whether industry standard equivalents are available, and if so, describe the benefits justifying use of the proprietary product. c. Considering the information provided in Scope of Work Section 6.3, explain in detail the reasoning for choosing the proposed CRM solution including why other solutions were not proposed. For example, if you are proposing a CRM solution that does not leverage another agency's existing CRM application, explain why the agency's existing CRM software was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions. d. Considering the information provided in Scope of Work Section 6.7, explain in detail the reasoning for choosing the proposed financial management solution including why other solutions were not proposed. For example, if you are proposing a financial management solution that does not leverage another agency's existing financial management application, explain why the agency's existing financial management application was not proposed. Note: Proposers are instructed to select the best commercial-off-the-shelf solution, whether leveraging existing agency applications or separate SI-provided COTS solutions. e. Describe in detail the proposed systems for providing 	<p>1.8 INIT's Back office: Open-Architecture and Interchangeable Modular Applications</p>

Evaluation Criteria 1 Submittal Requirement	INIT Proposal Section (Tab 1)
<p>the full range of services including:</p> <ul style="list-style-type: none"> i. Monitoring and management of field devices ii. Authorization of payments, debit and credit networks iii. Data collection from devices iv. Timely and accurate transaction processing v. Clearing and settlement between participants vi. Third-party billing and funds collection vii. Financial reconciliation viii. System management and monitoring ix. Indicate which applications and functions are already operational, and which have to be developed. Also, indicate which applications have been purchased from industry vendors and which have been or will be developed on a proprietary basis. f. Describe the proposed reporting system and the types of reports that will be provided to meet the system needs including KPIs, device health, and asset inventory reporting. g. Describe how the agencies will be able to generate custom reports using provided data and standard report generator tools 	

1.1 INIT's Capability Conformance Matrix – Tab 2

As indicated in INIT's Capability Conformance Matrix, INIT meets all the mandatory capabilities and key desired capabilities. While there are a few desired capabilities which INIT does not meet exactly as stated in the SOW, INIT does meet the required functionality in a different manner. INIT offers value-added capabilities beyond what is stated in the RFP; therefore, we believe we exceed the required capabilities for the next generation ORCA system.

1.2 An Innovative, Open Architecture, Service-Proven Account-Based System

Include a detailed narrative description of how the system architecture capabilities in the Scope of Work will be fulfilled. This section should also include the approach for providing and validating an account-based and open architecture system that will enable ease of integration for new partners, equipment and meet the capabilities of the Scope of Work.

INIT will fulfill and exceed the next generation ORCA requirements by aligning with the ORCA Agencies' strategy of utilizing:

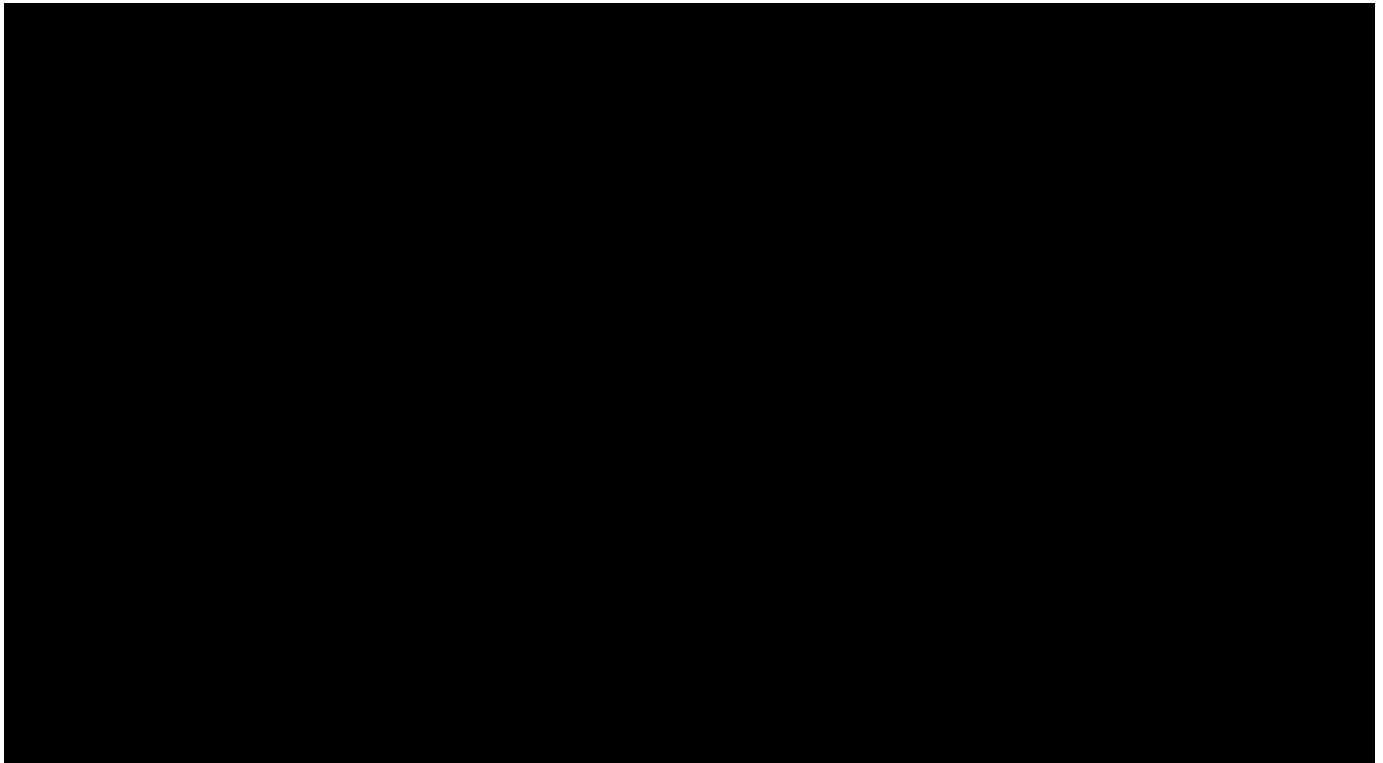
- Service-proven Automated Fare Collection System (AFCS) system core modules and devices,

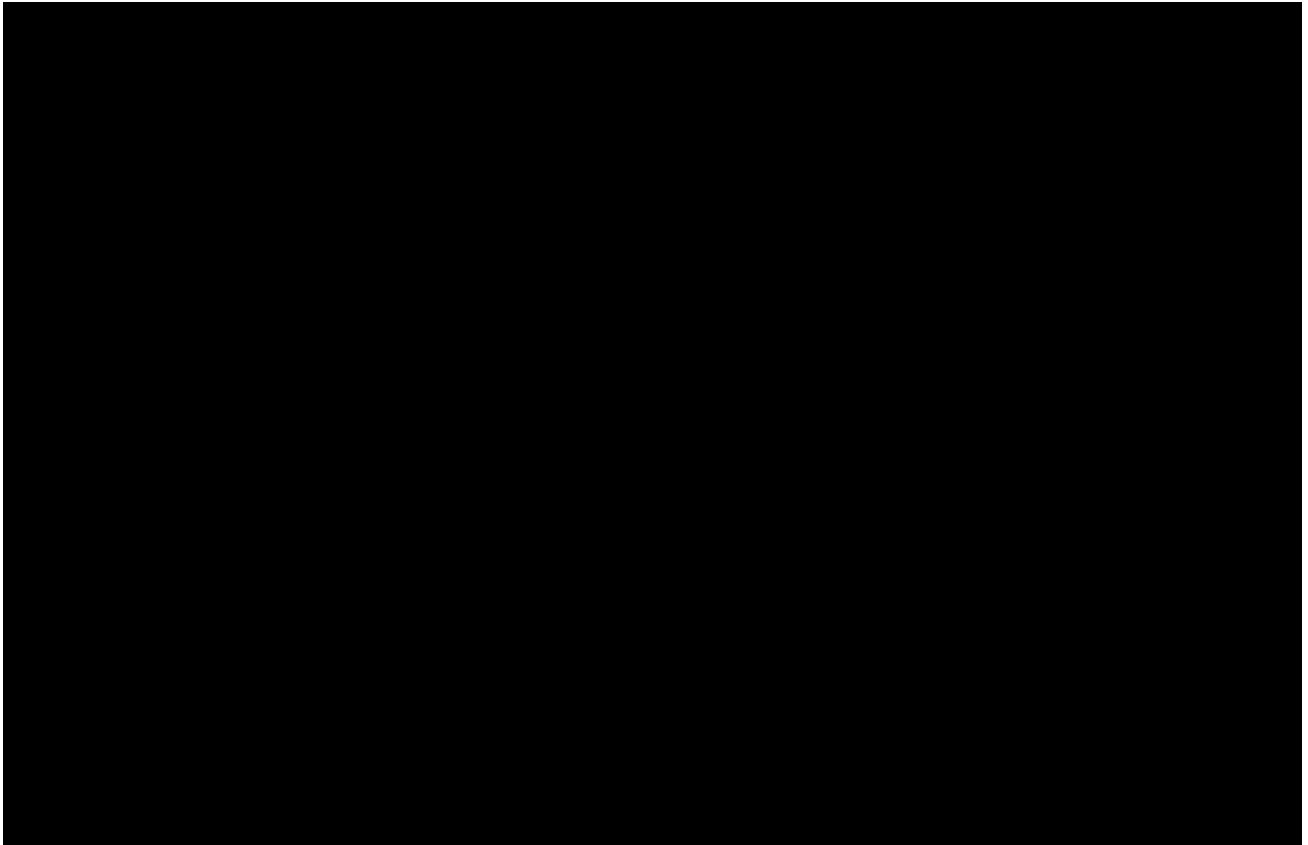
- Best-of-breed Commercial-off-the-Shelf (COTS) business applications,
- Industry leading firms with proven AFC track-record for externally sourced applications, and
- New development of selected existing modules for innovative enhancements.

INIT will implement an open architecture solution with a modular design and extensive use of Application Programming Interfaces (APIs), which has been INIT's consistent approach for ID-based ticketing systems. INIT's API's are well defined, documented and are woven throughout our solution providing fast and flexible integration possibilities for validation, inspection, retail sales, mobile ticketing, system monitoring, and websites.

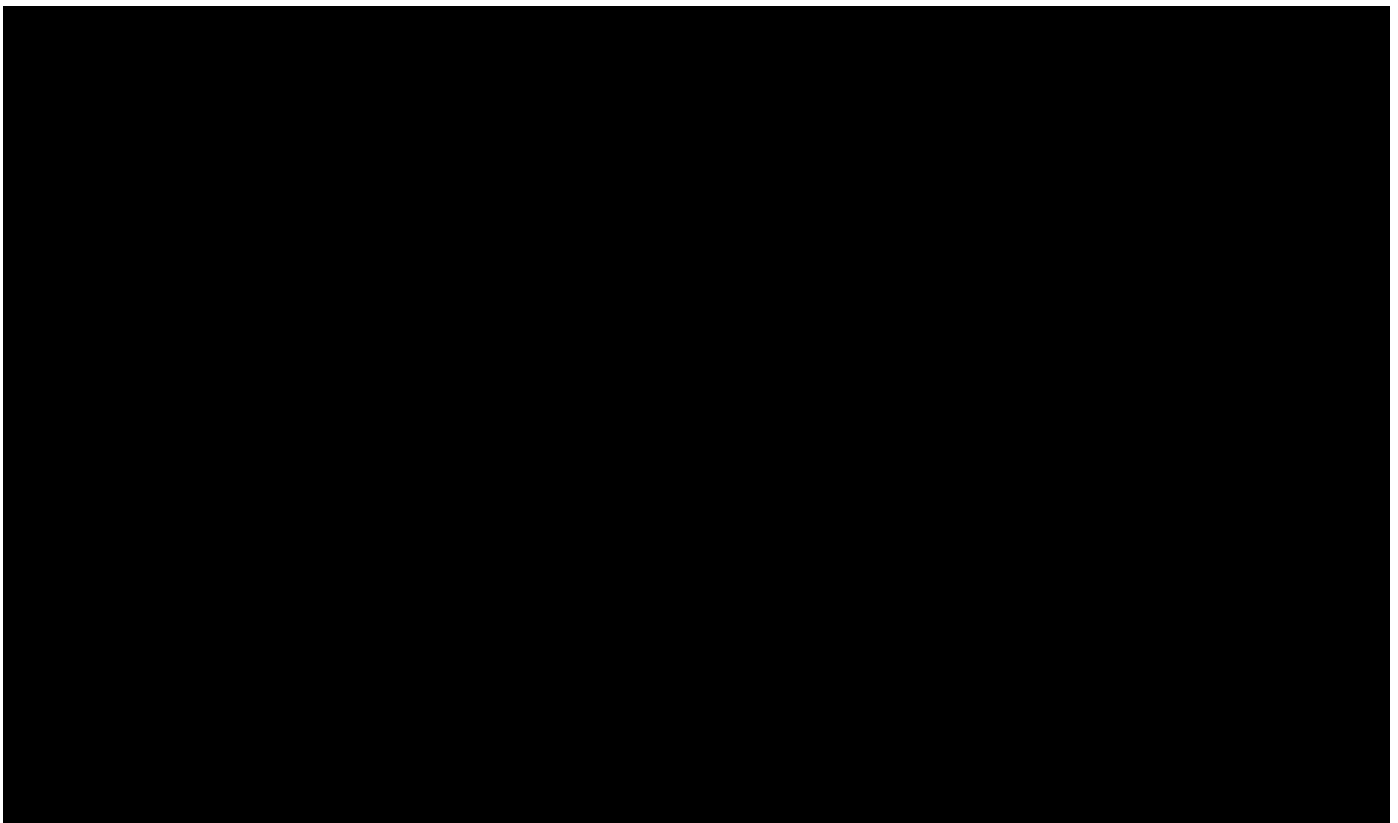
This approach will enable the use of INIT's core AFC modules, including INIT's **service proven** account-based Transaction Processor (ATP), to integrate with best of breed Commercial Off-the Shelf (COTS) sub-systems – such as, Salesforce Customer Relationship Management (CRM) and Sage Financial Management. INIT has selected industry leading firms (such as, Bytemark) for mobile apps, and Marathon Consulting for website development, which has a strong proven record for AFC website development. With our approach of service proven AFC modules, best of breed COTS sub-systems, industry leading firms for external apps, and innovative development, INIT will provide the best solution for ngORCA.

1.2.1 INIT Fulfills and Exceeds the System Architecture Capabilities





1.2.1.1 INIT's Modular Design System Architecture Leverages Open APIs





1.2.1.2 Leveraging Best of Breed Commercial-Off-the-Shelf (COTS) Subsystems

1.2.1.3 INIT Teams with Expert COTS Consultants/Integrators

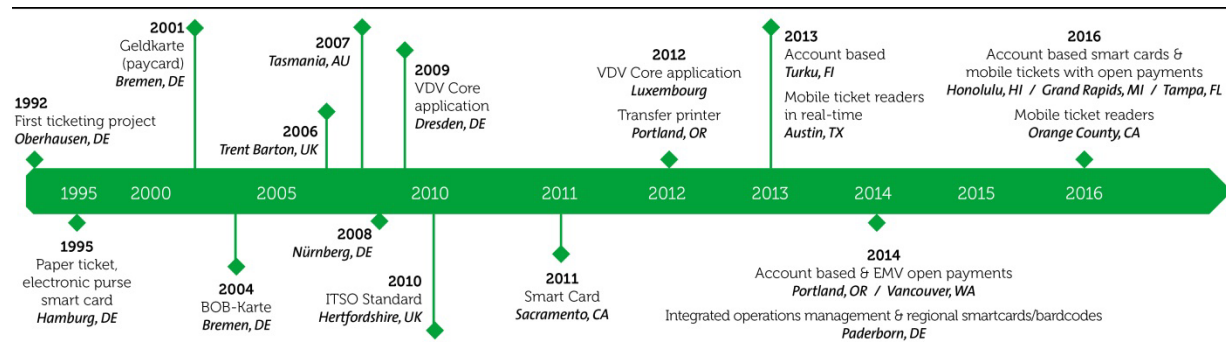
The selection of best-of-breed commercial-off-the-shelf software does not ensure successful integration and interoperability with the INIT system; therefore, INIT is leveraging relationships with COTS value-added resellers and experts. These companies will provide knowledge and expertise required to realize the full potential of interoperability between COTS products and INIT's API library. Please see Section 1.3 for a listing and information on the INIT subcontractor team.

INIT is uniquely suited to be the System Integrator (SI) for ngORCA because:

- INIT has experience implementing multi-agency, account based, Automated Fare Collection System (Portland, Tampa, Honolulu)
- INIT has experience transitioning an existing Vix Automated Fare Collection System to an INIT AFCS (Christchurch, New Zealand)
- Approximately 80% (1700 out of approximately 2100) ngORCA vehicles are currently equipped with INIT onboard equipment resulting in reduced onboard integration risks

1.2.1.4 INIT's Extensive Automated Fare Collection Experience







The figure below provides a timeline summary of INIT's 25 years of fare collection history showing key systems and reflecting INIT's innovation and ability to evolve with changing technology.



INIT's 25 Years of Fare Collection History – Innovations with Changing Technology

INIT has deployed two account-based systems that are currently in revenue service, one in Portland, Oregon and the other in Turku, Finland. Additionally, we are currently implementing account-based systems in Tampa, Florida and Grand Rapids, Michigan which are all about to enter the pilot phase of the project and will soon be starting the pilot phase in Honolulu, Hawaii.

Each of these systems leverage open architecture and extensive use of APIs as similarly proposed for ngORCA. The following table provides a more comprehensive list of our automated fare collection system experience including multi-agency systems similar to ngORCA.

City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Marburg, Germany	50							
Hamburg, Germany	1,200							
Hildesheim, Germany	80							
Neunkirchen, Germany	70							
Frankfurt, Germany	200							

City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Hamm, Germany	80							
Osnabrück, Germany	282							
Leverkusen, Germany	240							
Keil/Plön, Germany	96							
Bochum, Germany	340	90						
Mühlhausen, Germany	113							
Bonn/Troisdorf, Germany	250							
Südthüringen, Germany	85							
Solingen, Germany	100							
Heidelberg, Germany	100							
Trier, Germany	120							
Mülheim a.d. Ruhr, Germany	65							
Oberhausen, Germany	150							
Bremen, Germany	265	128						
Bremerhaven, Germany	70							

City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Herne-Castrop-Rauxel, Germany	56							
Oldenburg, Germany	88							
Gotha, Germany	110							
Wesermarsch, Germany	38							
W.Giese, Germany	27							
Delmenhorst, Germany	12							
Fulda, Germany	40							
Lüdenscheid, Germany	335							
Dortmund, Germany	240							
Graftschaft Hoya, Germany	22							
Trent Barton, Nottingham, UK	330							
Bavaria, Germany	3,100							
Tasmania, Australia	220							
Dresden, Germany	685							
Nuremberg, Germany	352	52						

City	Buses	LRV / Platform Validator	German Chip Card (Geld Karte)	Agency Smart Card	2D Barcode	Multi-Agency	Account Based	Open Payments (EMV)
Christchurch, NZ	305							
Sacramento, CA.	425							
Portland, OR	888	49						
Turku, Finland	260							
Birmingham, UK	1500							
Orange County, CA	556							
Tampa, FL	600							
Grand Rapids, MI	150	34						
Honolulu, HI	550	250						

1.2.1.4.1 INIT's Experience Transitioning a Vix System

INIT possesses experience transitioning agencies from legacy Vix system to INIT-offered systems. In an AFCS competitive procurement, Christchurch, New Zealand selected INIT over other competitors as well as the incumbent (Vix). Although the Christchurch project was not as large as ngORCA, INIT transitioned the system with Christchurch successfully addressing similar complex AFC system transition challenges, including:

- Minimizing customer impact
- Preserving operating revenue
- Minimizing operational impacts to the agency
- Overcoming onboard equipment space constraints
- Minimizing transition-only software

In addition to the Christchurch, NZ solution, INIT also successfully transitioned a legacy card-based solution to an account-based solution in Turku, Finland. The Turku system was transitioned approximately 3 years ago and is one of INIT's key reference projects.

1.2.1.4.2 INIT's Existing Transit Technology Deployment with ORCA Agencies Reduces Integration and Implementation Risk

INIT currently provides the transit CAD/AVL systems for King County Metro (KCM) and Community Transit (CT), which involves over 50% of the ORCA agencies' vehicles. This will significantly simplify and mitigate the risk related to the onboard integration – as the INIT onboard validators will be communicating with the INIT Vehicle Logic Unit (VLU) COPILOTpc2s (CPC2s). This advantage is especially pronounced for the KCM vehicles which require the AFCS to communicate not only the INIT VLU service data, but also to share the single Driver Display Unit (DDU).

1.2.2 Enabling Ease of Integration for New Partners and Equipment

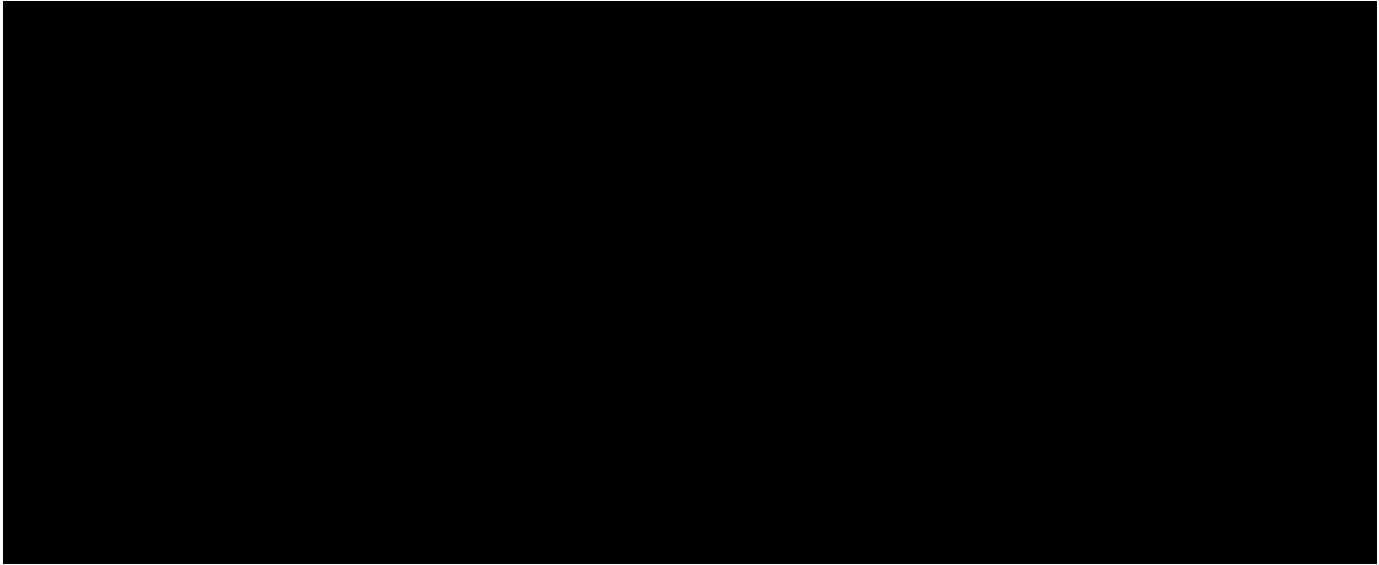
INIT's open architecture and modular design, leveraging our broad API library, enables ease of integration of new equipment or the addition of 3rd party hardware and software providers. Should the ORCA Agencies wish to add a new agency to ngORCA, INIT's MOBILEvario can easily do so. In the rare event the new agency utilizes business rules which do not exist, there may be additional scope involved. MOBILEvario is inherently architected to support multiple agencies and can easily add new agencies quickly and non-disruptively. Each agency's data is partitioned from one another to ensure data integrity and privacy. These controls prevent an agency from accessing another agency's data, user administration, etc. The system has the capability of providing separate, agency-oriented storage of data, presentation (GUIs), and configurations (customizations).

Each transit agency or subdivision is only able to see and change its own data. In MOBILEvario the agency is the top-level partition for access authority and represents a closed, technical and organizational, data unit within the system.

The system contains both global and agency specific data and parameters. Agency specific data and objects can be customized. Examples are additional tickets or different fare fees. Universal agency data and objects serve the general and agency-independent configuration of the system. Examples are customer data, card management and system parameters.

The additional API Management platform, hosted in Microsoft Azure, provides for simplified and controlled on-boarding of 3rd party API consumers. As the API gateway, the API management platform can ensure the identity, integrity and appropriate access and API call volume restrictions required to safely provision new partners and equipment.

1.2.3 Meeting and Exceeding the Capabilities of the Scope of Work



1.3 INIT's Highly-Qualified Subcontractor Team

Include a chart that identifies the subcontractor firms that will be responsible for providing the products or services required by the Scope of Work.

The INIT team includes highly-qualified, industry leading subcontractor firms as indicated in the following table:

Subcontractor Firm	Qualifications	Scope
Marathon Consulting	Extensive experience with website development and CRM implementations – including both Salesforce and Microsoft Dynamics. Website developer for INIT's Portland, Grand Rapids, Tampa, and Honolulu AFCSSs.	Design & development for the responsive Website CRM (Salesforce) integration and implementation
Bytemark	Extensive mobile app development experience in the transit industry including work with INIT in Grand Rapids, Tampa, Austin and Sacramento.	Mobile app (virtual card) development

Subcontractor Firm	Qualifications	Scope
BrainSell	Extensive experience in the integration and implementation of Sage financial management applications.	Financial management application (Sage) integration and implementation
E-BROS	Mobile application development experience for agency-facing NFC related applications in Honolulu.	Mobile app (fare validation and inspection) design & development
Anthro-Tech	Extensive UI/UX experience.	UI/UX design
ESP	Extensive vehicle installation experience and DBE.	Vehicle installations
WOWRACK Hosting	Enterprise Class data center with multi-datacenter locations in Seattle supporting large Seattle based organizations.	Datacenter hosting –Production System, Pre-Production System, Test System, Out-of-region Backup
Arctic Wolf	Security Operations Center –as a service provider with security engineering personnel and tools providing security monitoring and escalation.	Information Security, Compliance, Operations and Maintenance
Persistent Systems	Platinum Salesforce Integration Partner	Salesforce integrator

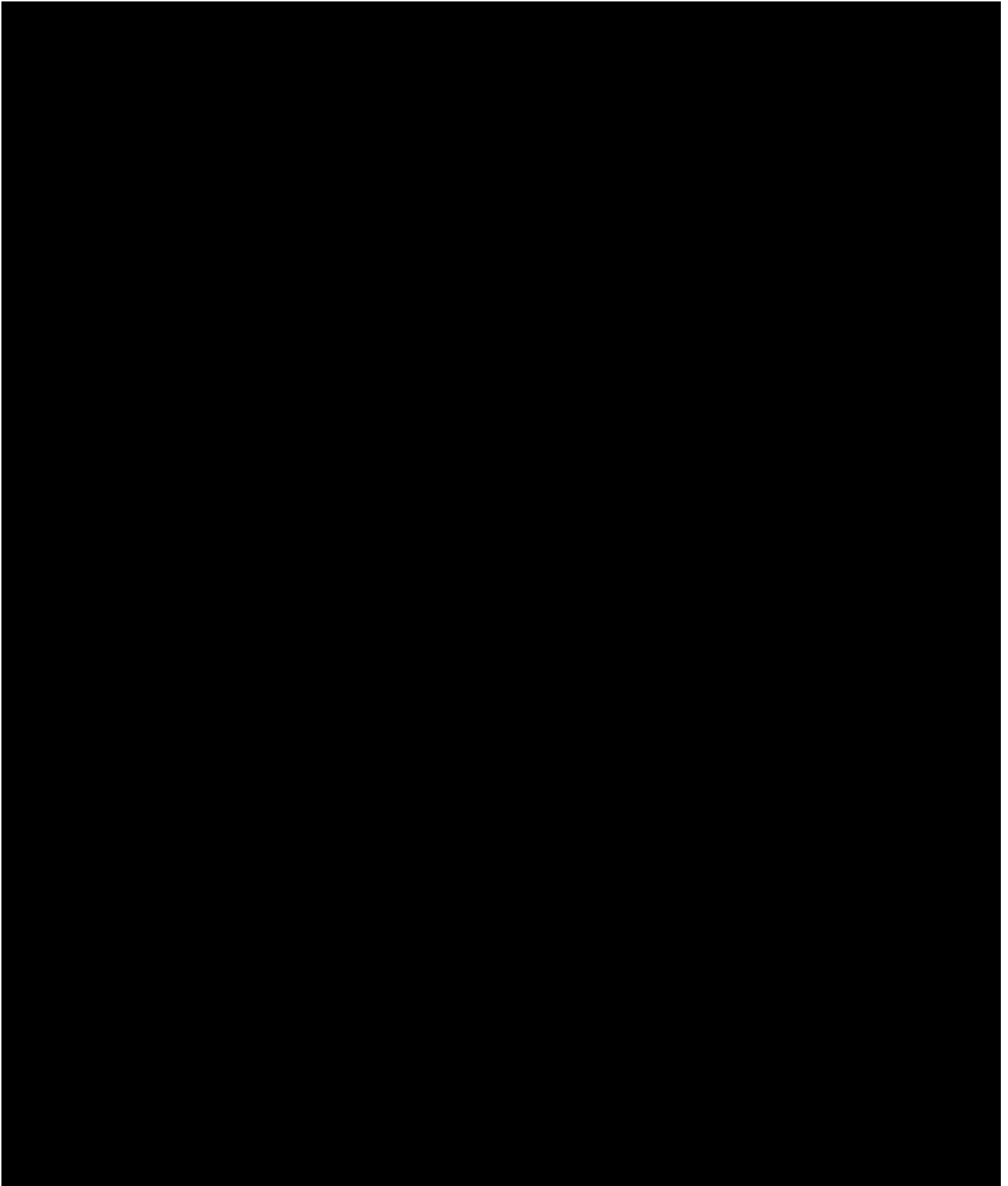
1.4 INIT's Open Architecture System

This section is ordered according to the RFP Scope of Work Section 3, System Design & Architecture.

1.4.1 Common Design Capabilities

Following are design elements common throughout the System – including the overall system architecture that will support the System leading to a cohesive, reliable, and easy-to-use regional fare collection system.

1.4.1.1 Service-Proven Design



1.4.1.2 Nonproprietary Technology

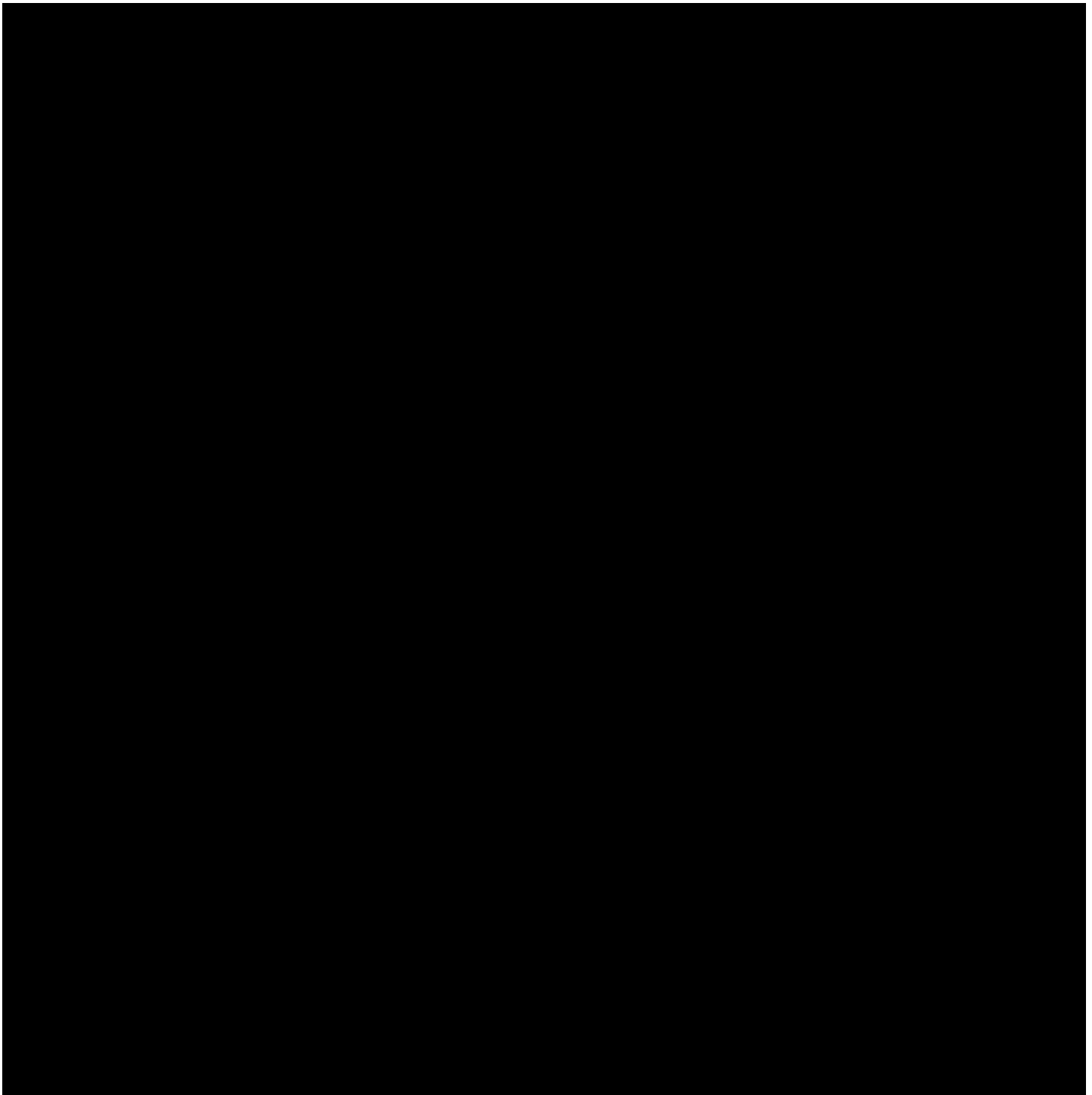
1.4.1.3 Supply & Availability

INIT will make best efforts to supply devices, components, parts, modules assemblies and subassemblies, as well as software and other essential elements of the Systems, itself and from original equipment manufacturers (OEM) that have a service life of 12 years after Final System Acceptance. If any OEM component is discontinued or obsoleted by the SI or OEM, INIT will provide the Agencies six (6) months advance notice prior to the last available date of purchase or support. Additionally, INIT will work with the Agencies to provide suitable replacements which are like in functionality and compatibility as the original.

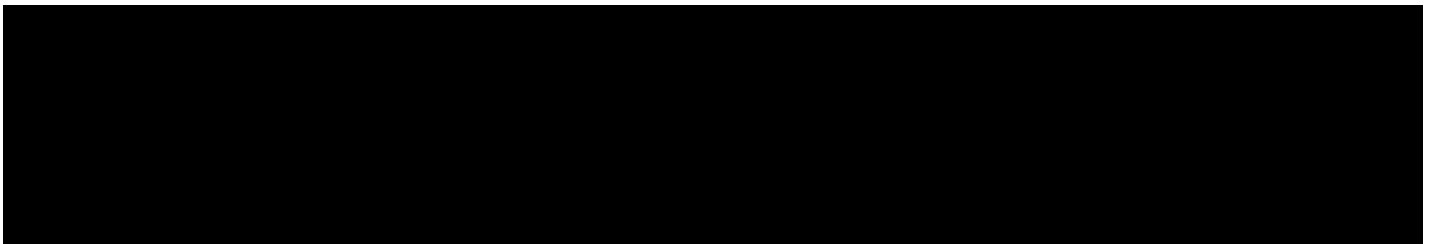
1.4.1.4 Materials & Workmanship

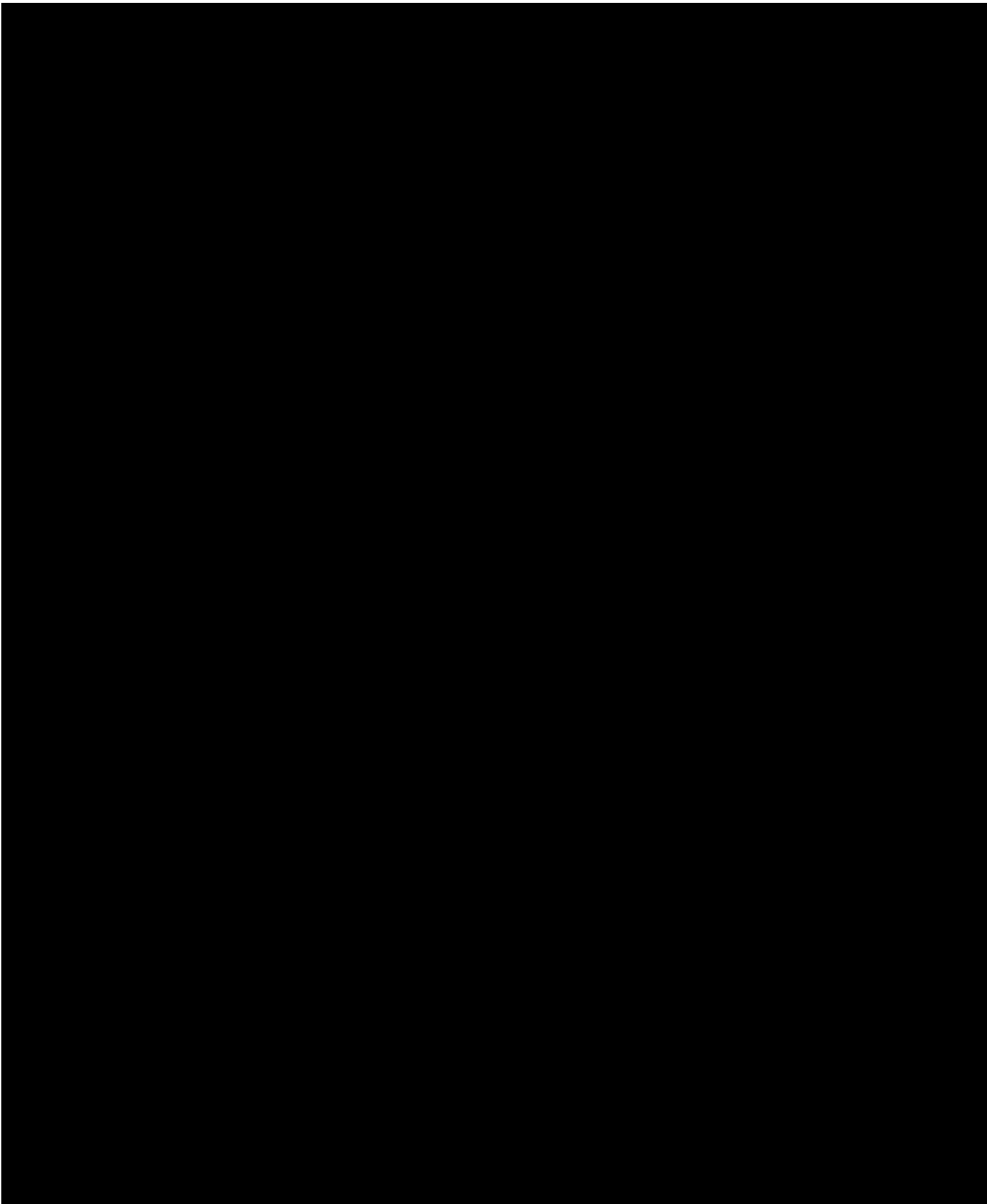
INIT will utilize new components which conform to the capabilities of the next generation ORCA SOW – however, as allowed for in the SOW, INIT may utilize new components which utilize recycled materials. In the event INIT wishes to change components, it will do so only with the ORCA Agencies' approval. INIT will utilize equipment which is free from safety hazards and complies with relevant Underwriter's Laboratory (UL) standards. All interior and exterior surfaces will be free from sharp edges, protrusions, exposed wires, and other hazards. If it is found that approved sources do not furnish a uniform product, or if the product from such source proves unacceptable in meeting the requirements in the SOW, INIT will address and correct these issues.

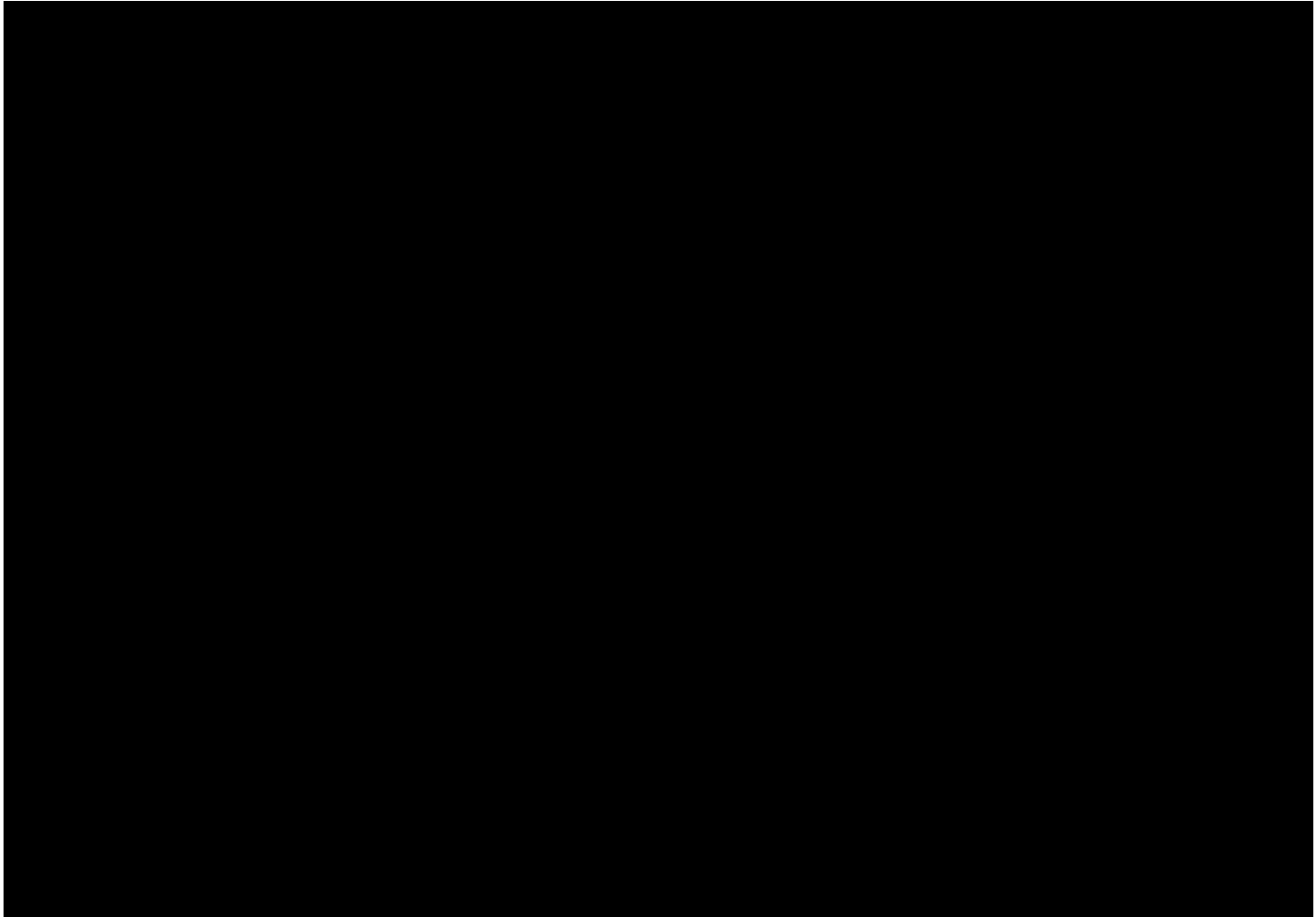
1.4.1.5 Software Design Principles

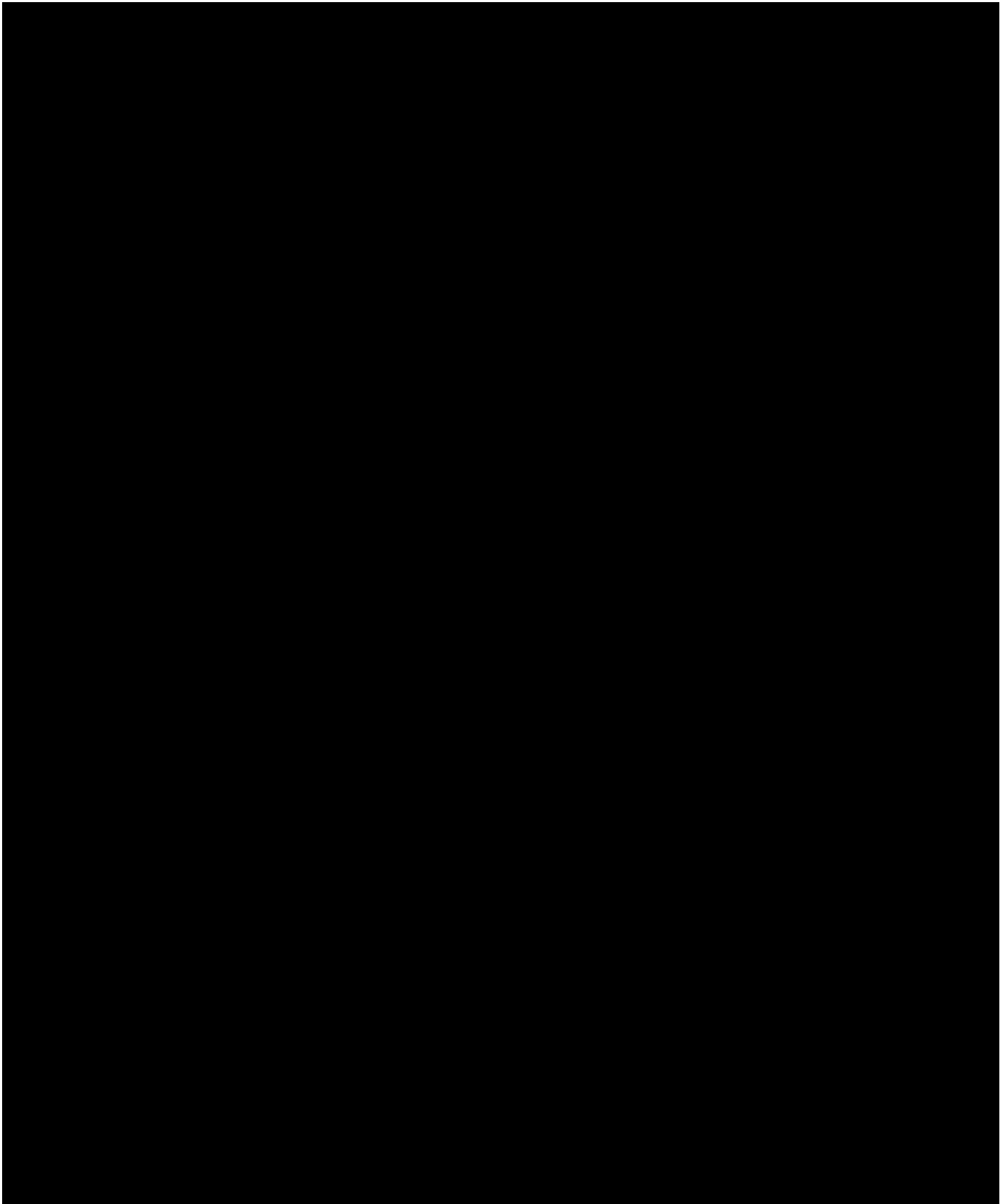


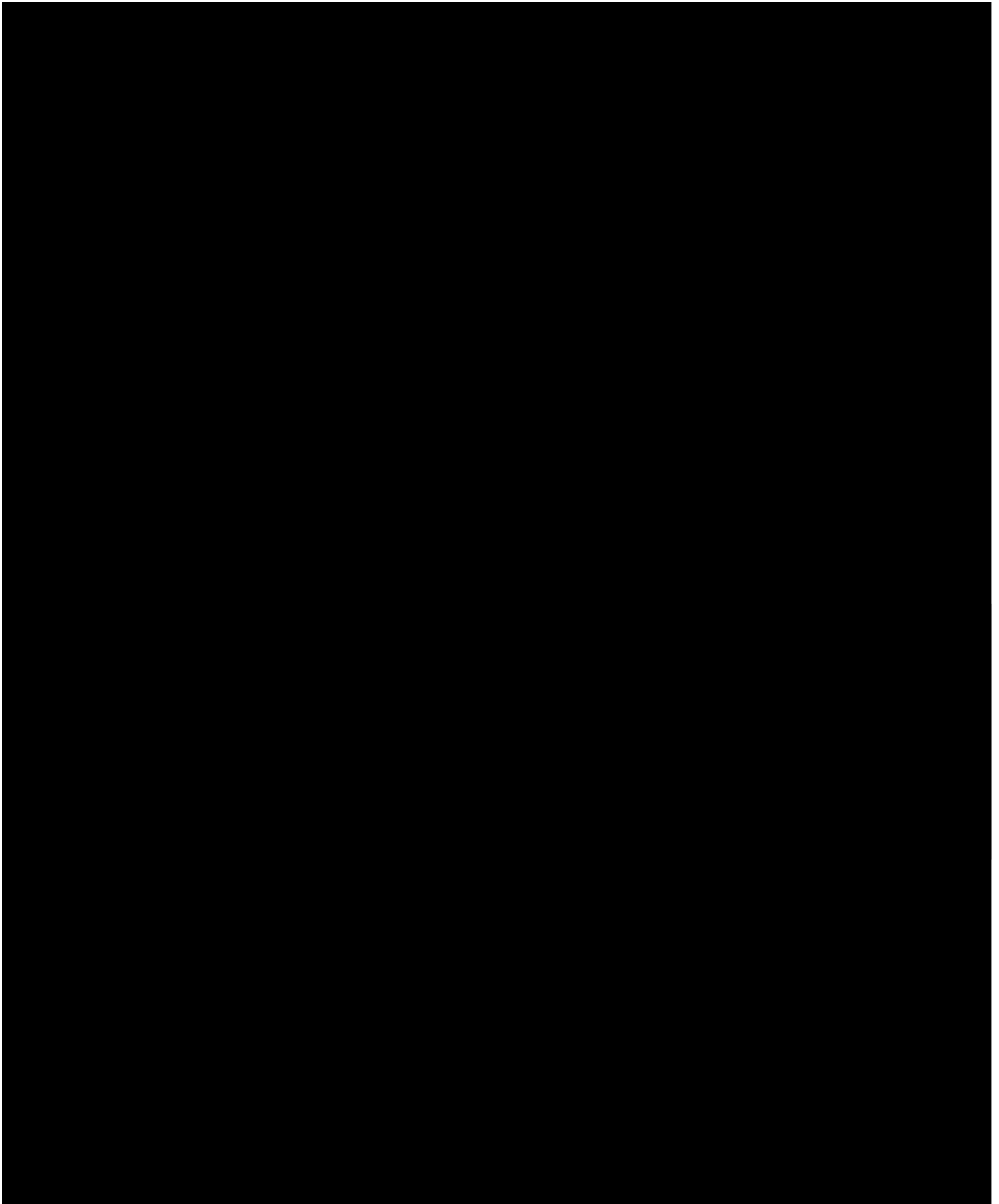
1.4.1.6 User Interface & User Experience

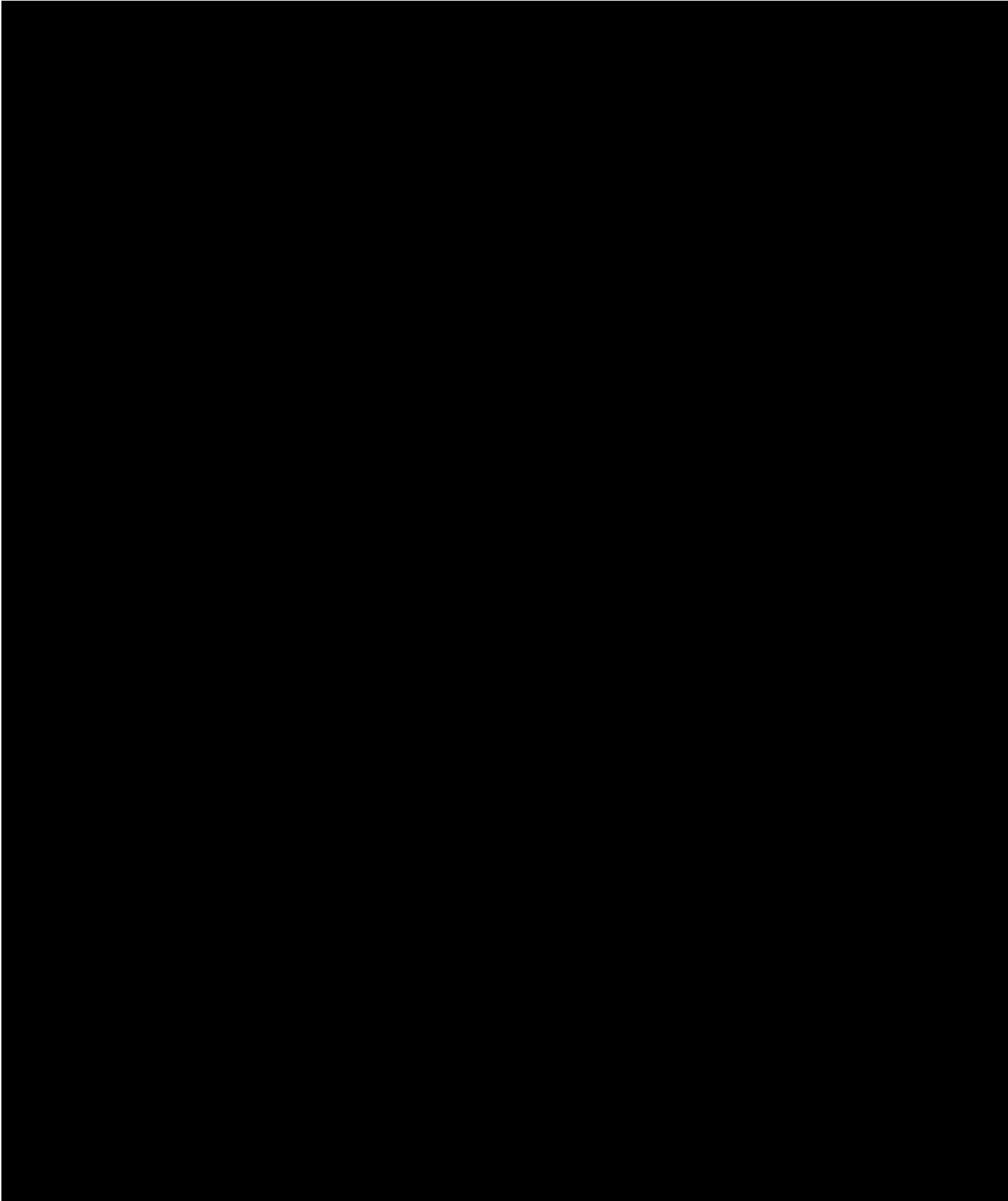


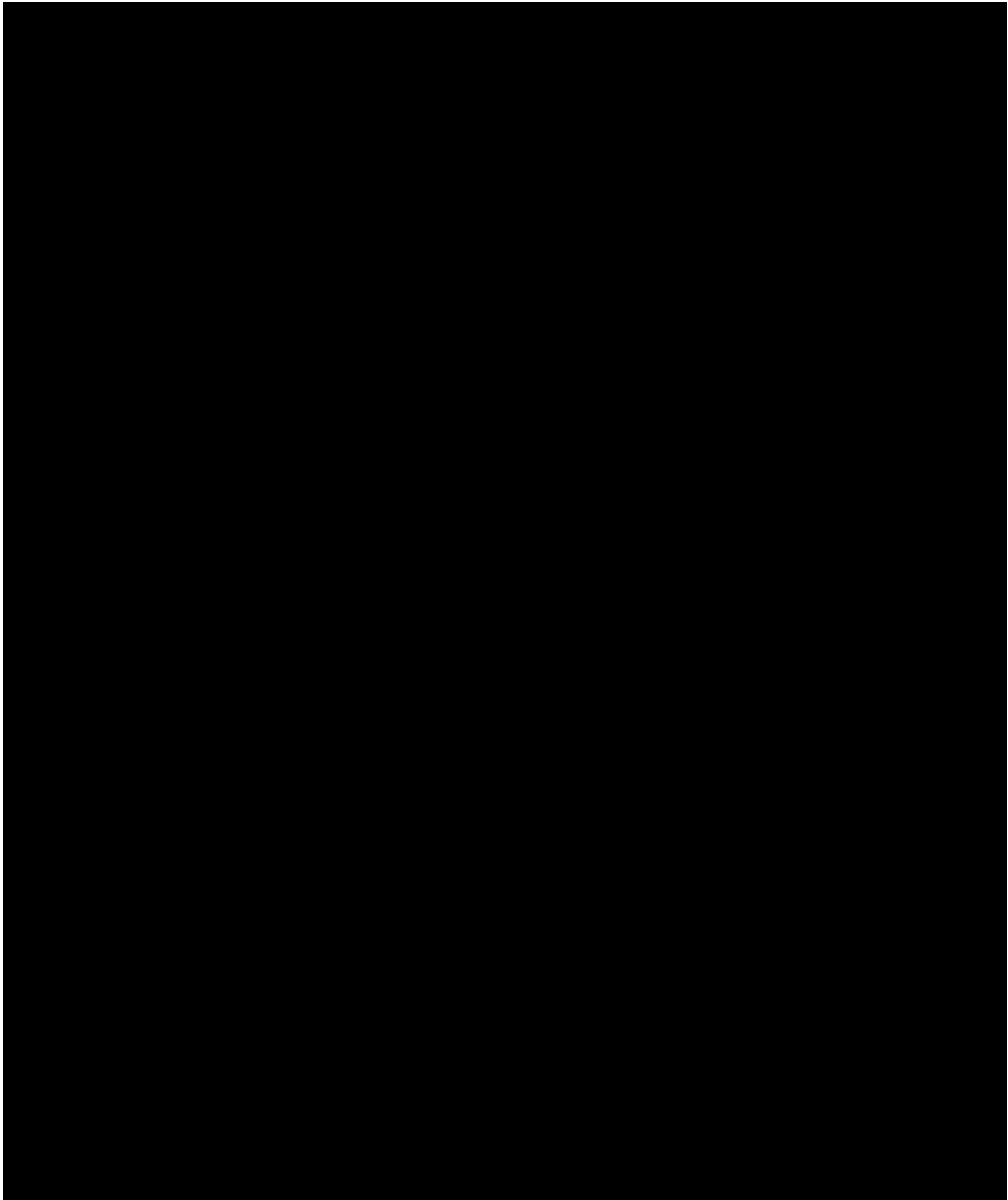


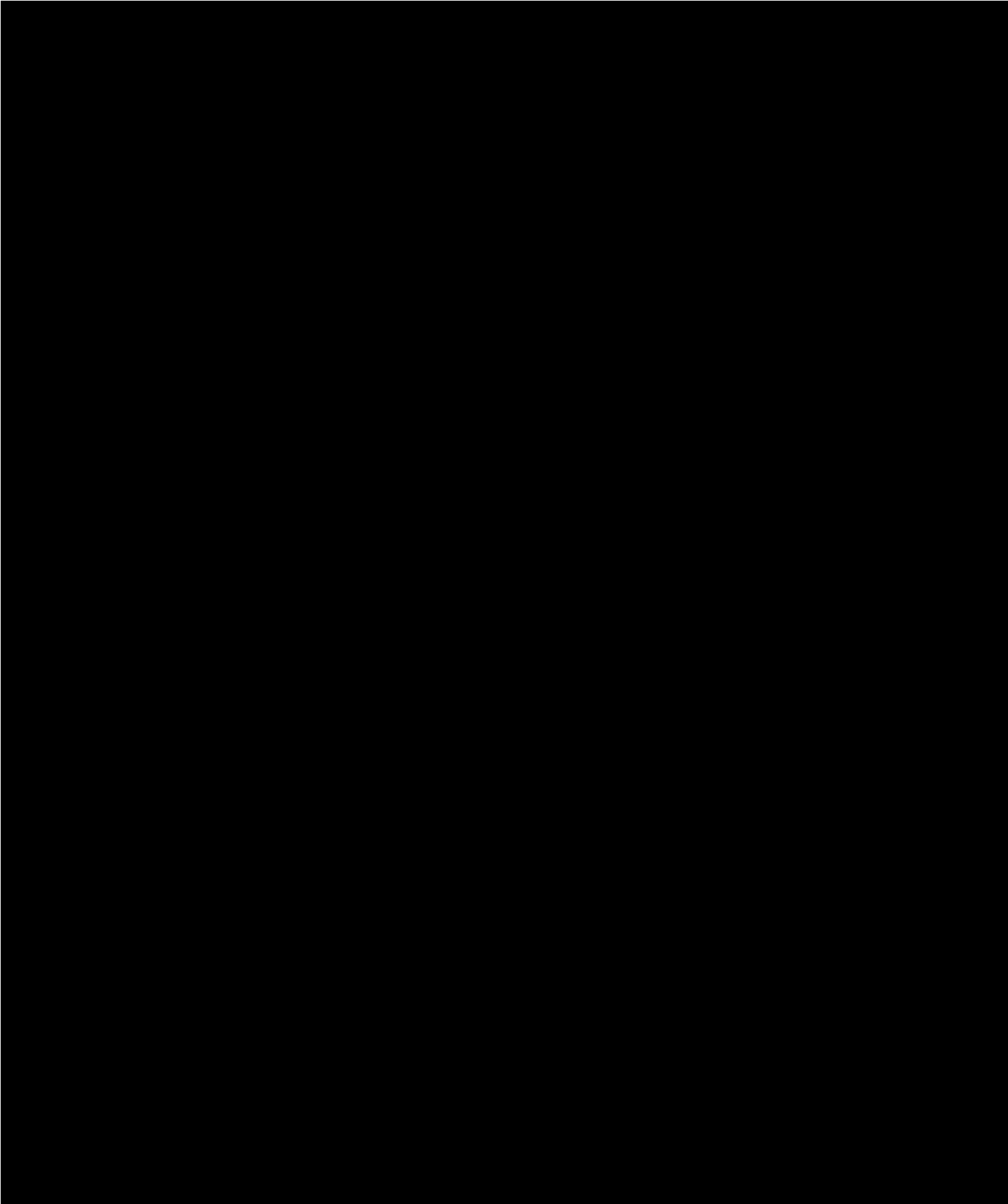


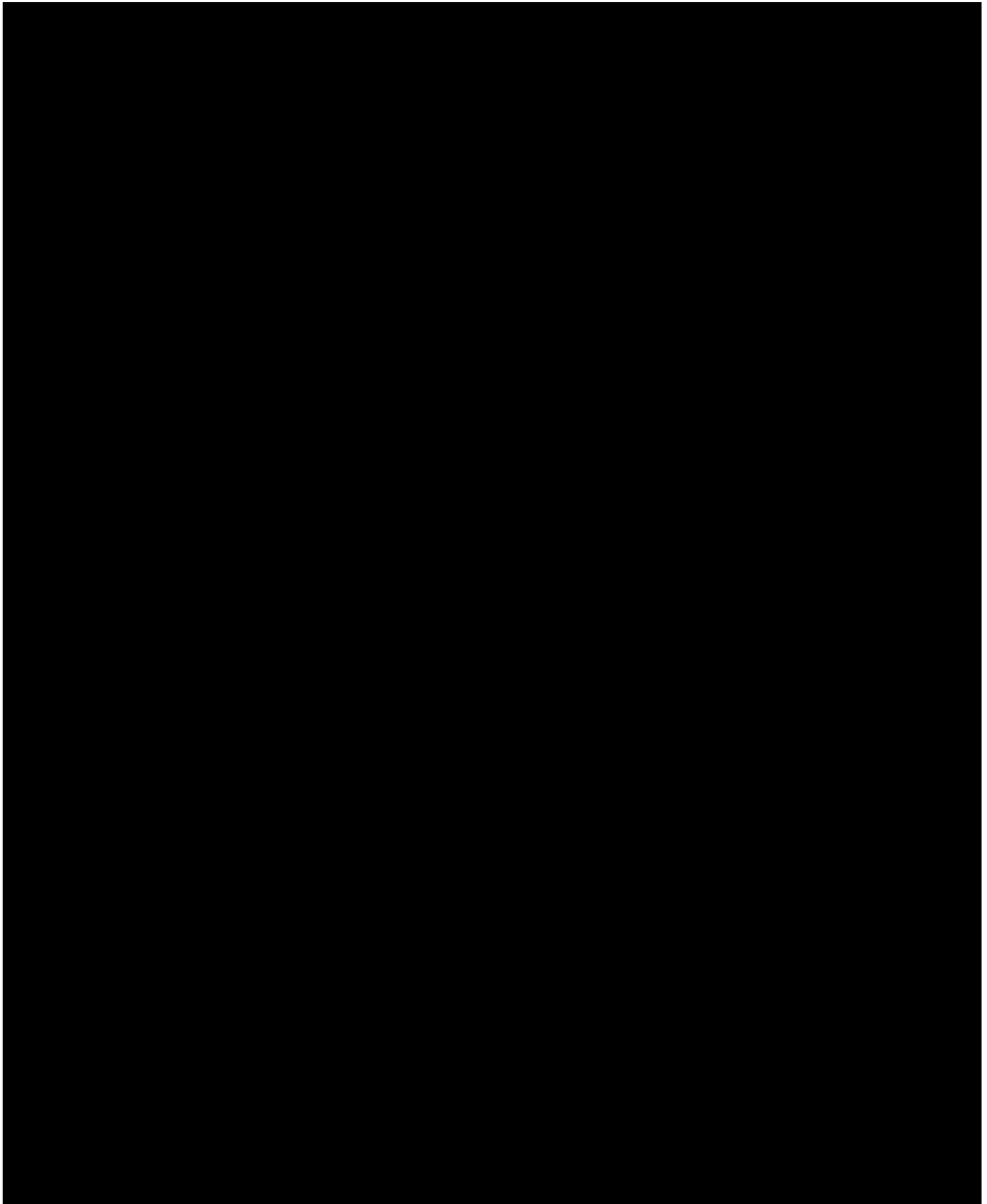


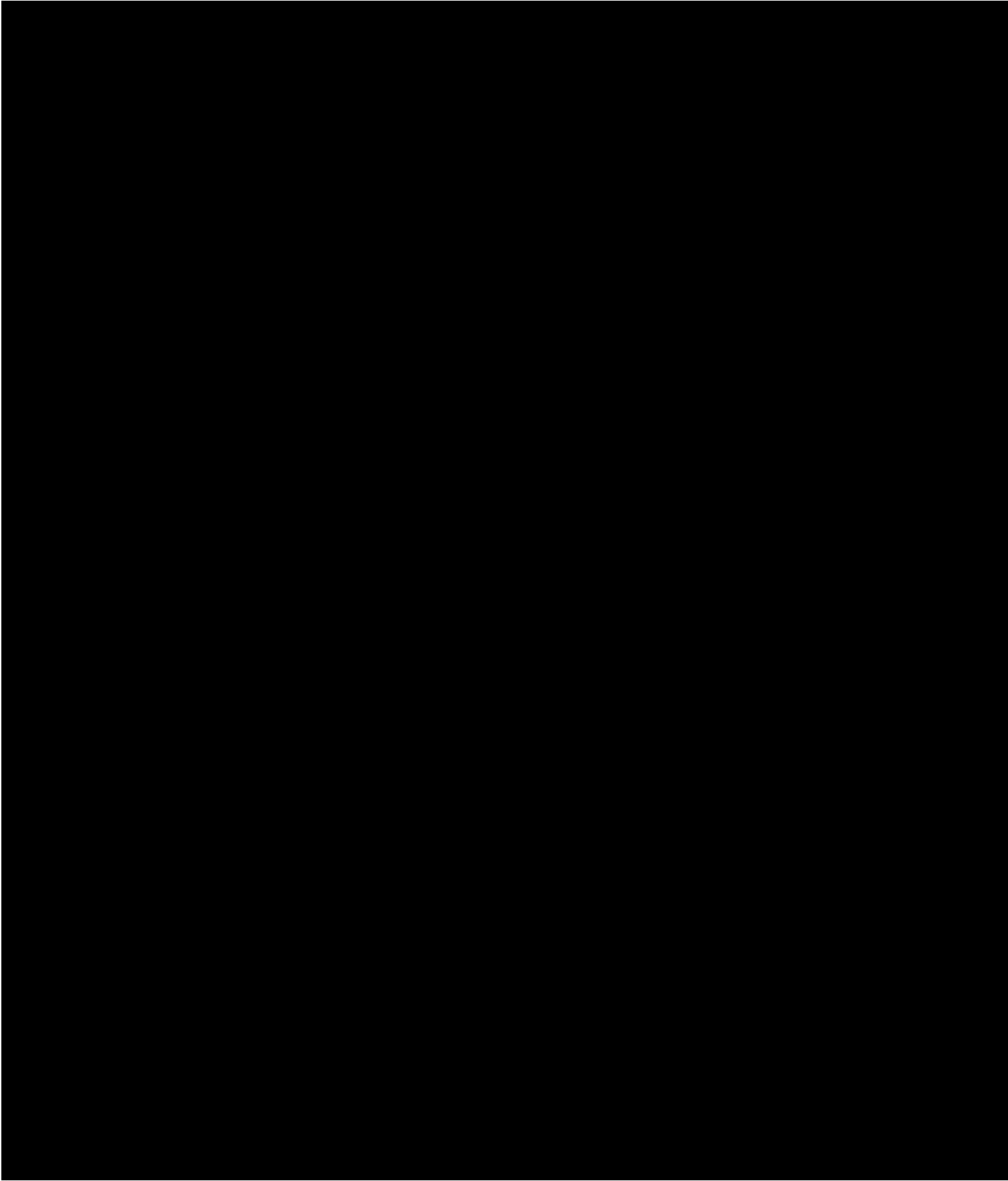


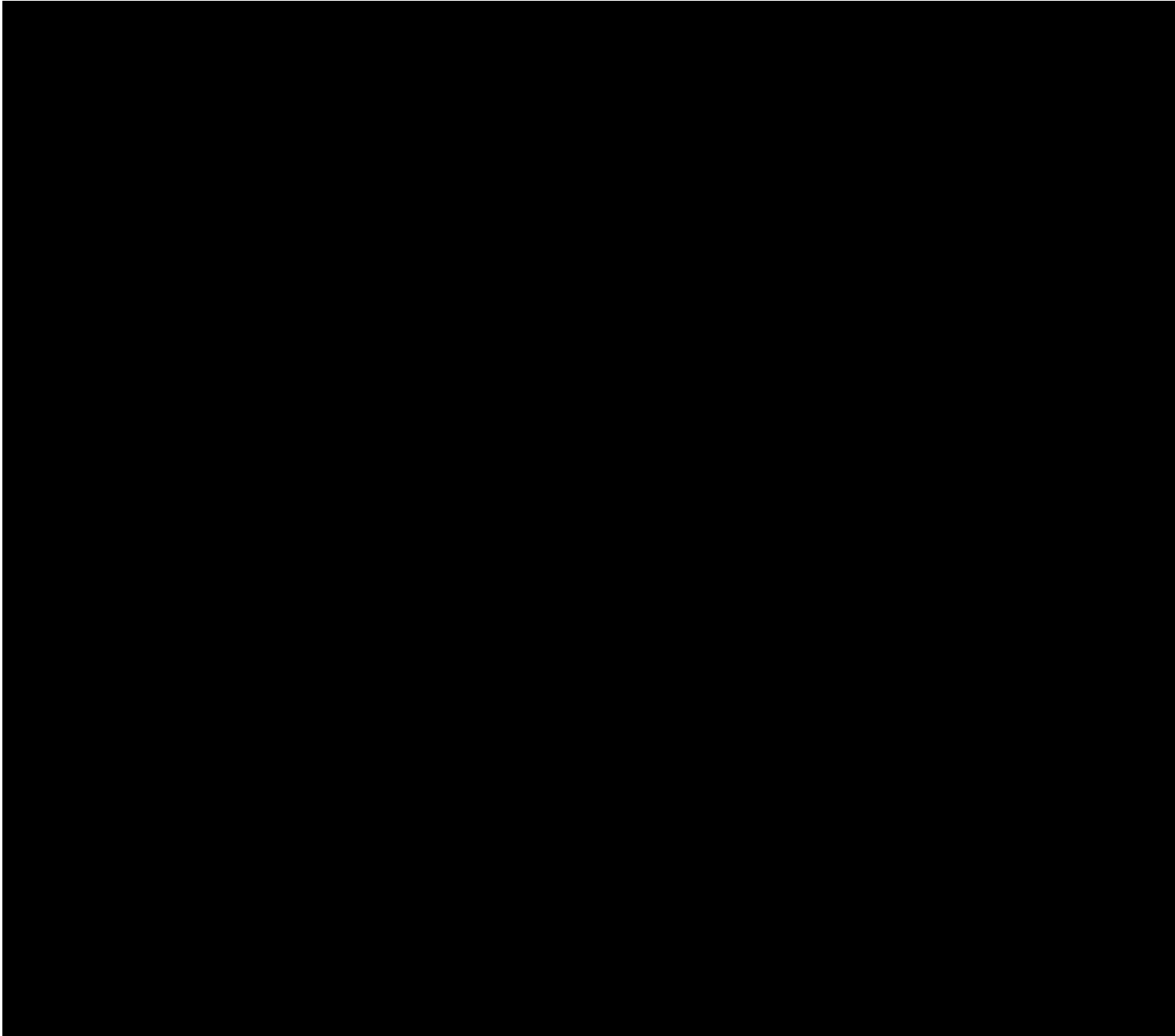


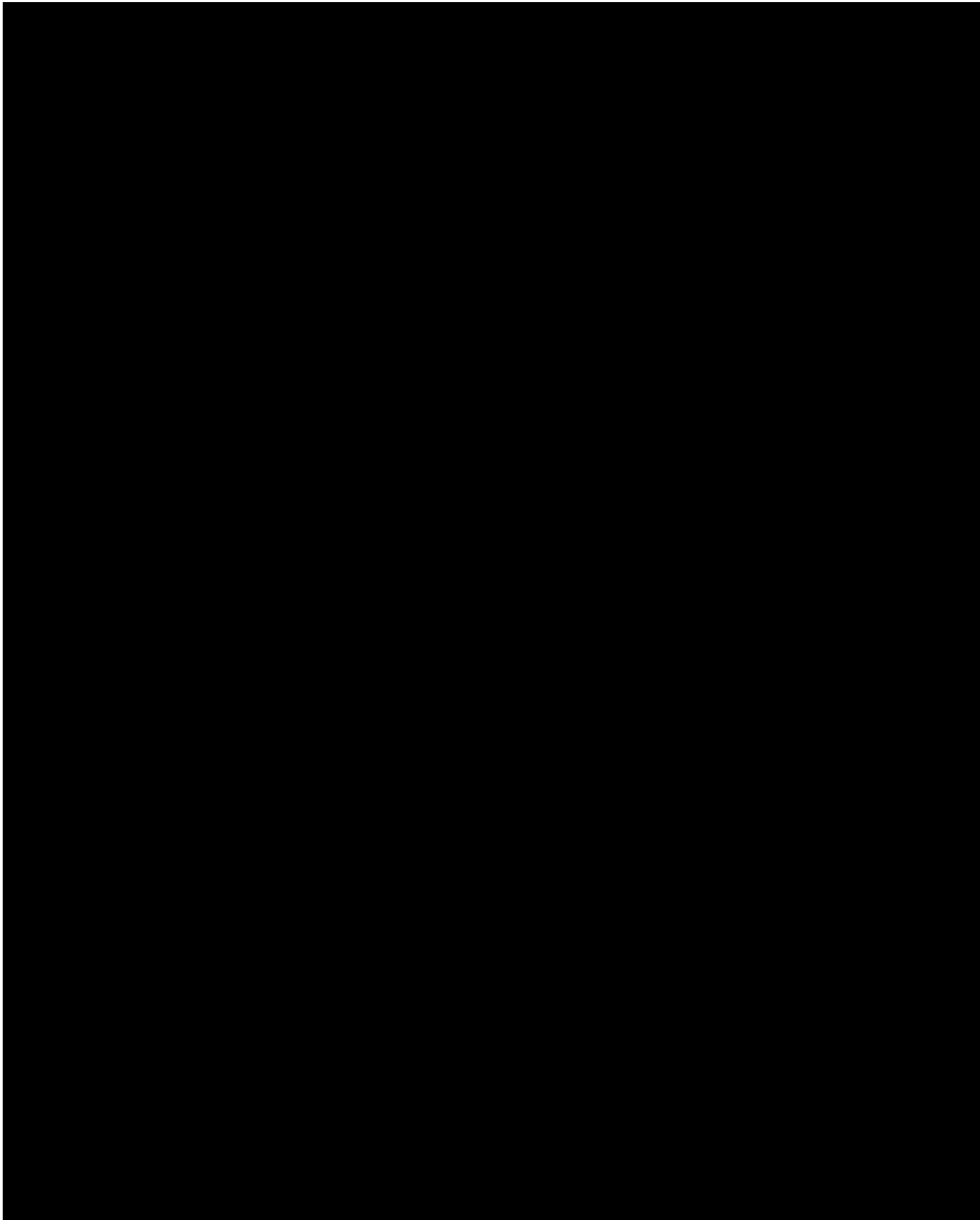


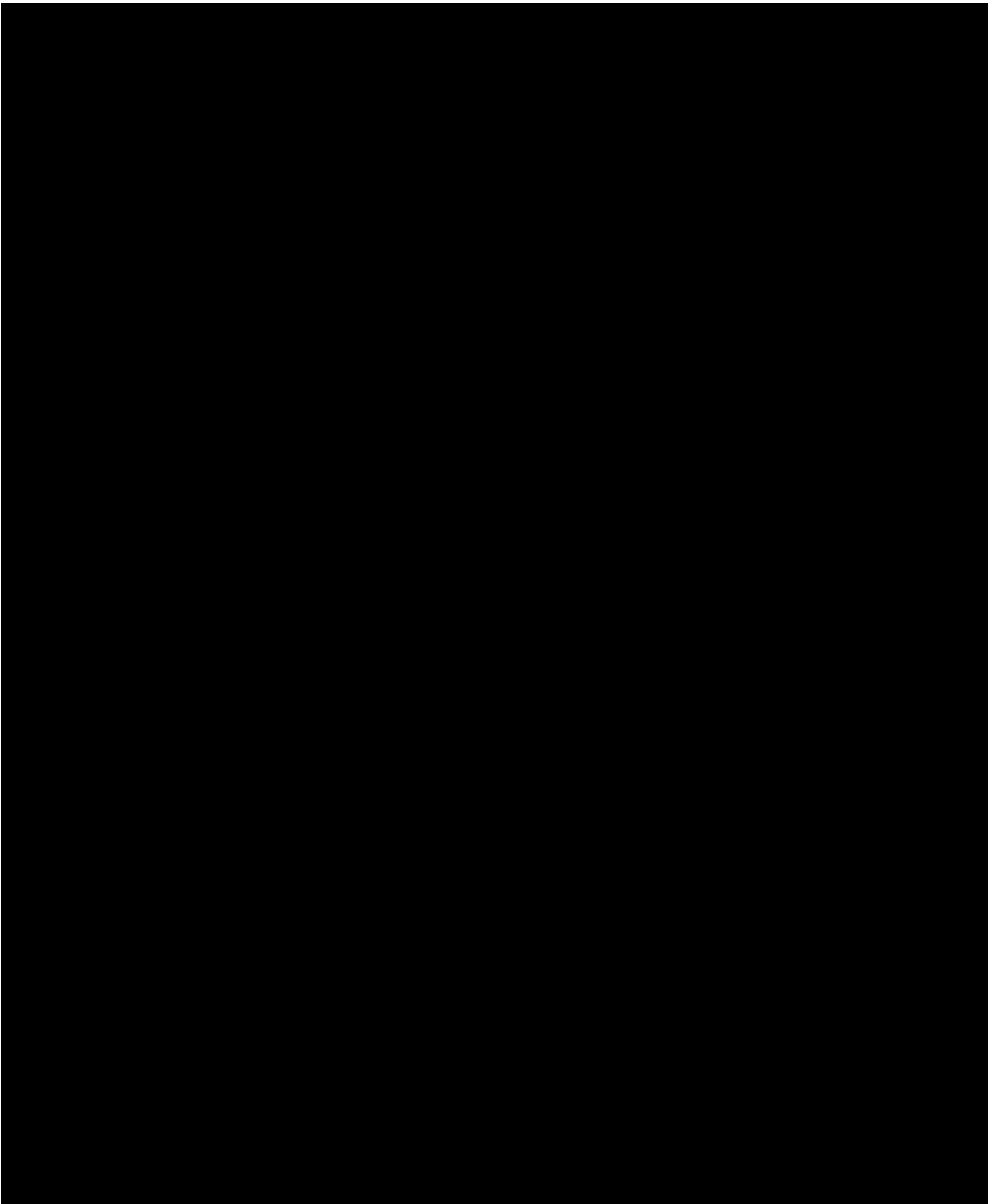


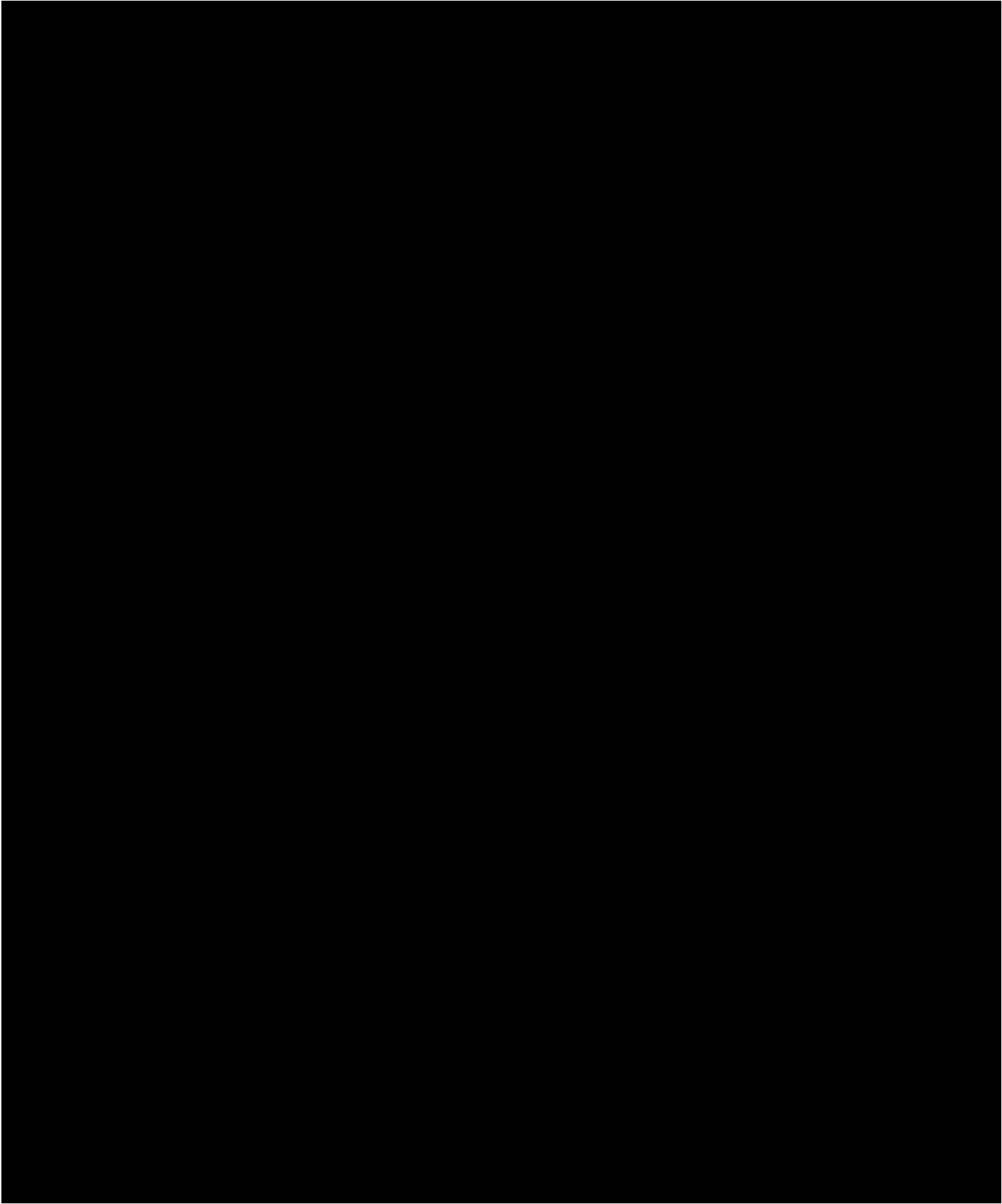


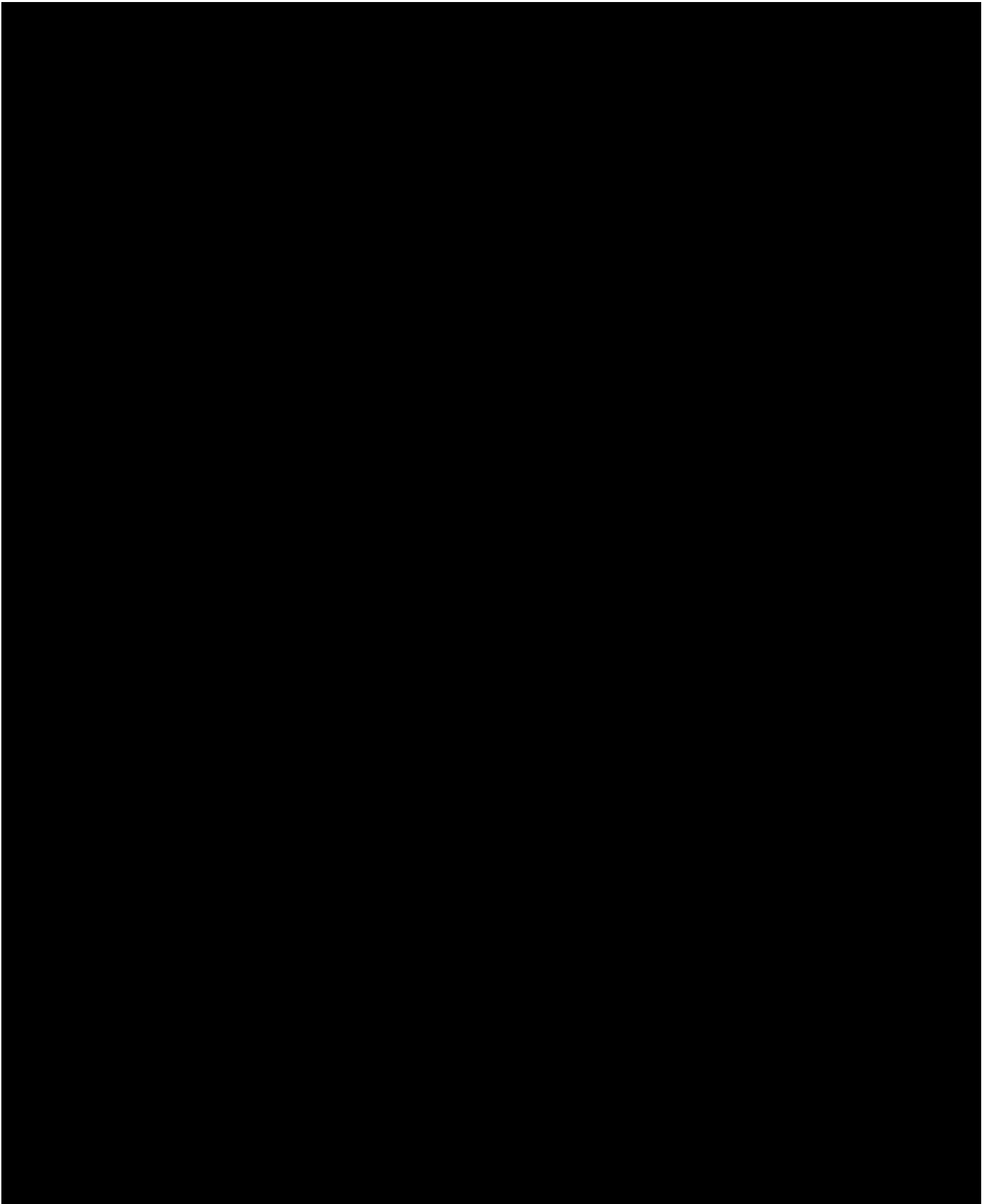


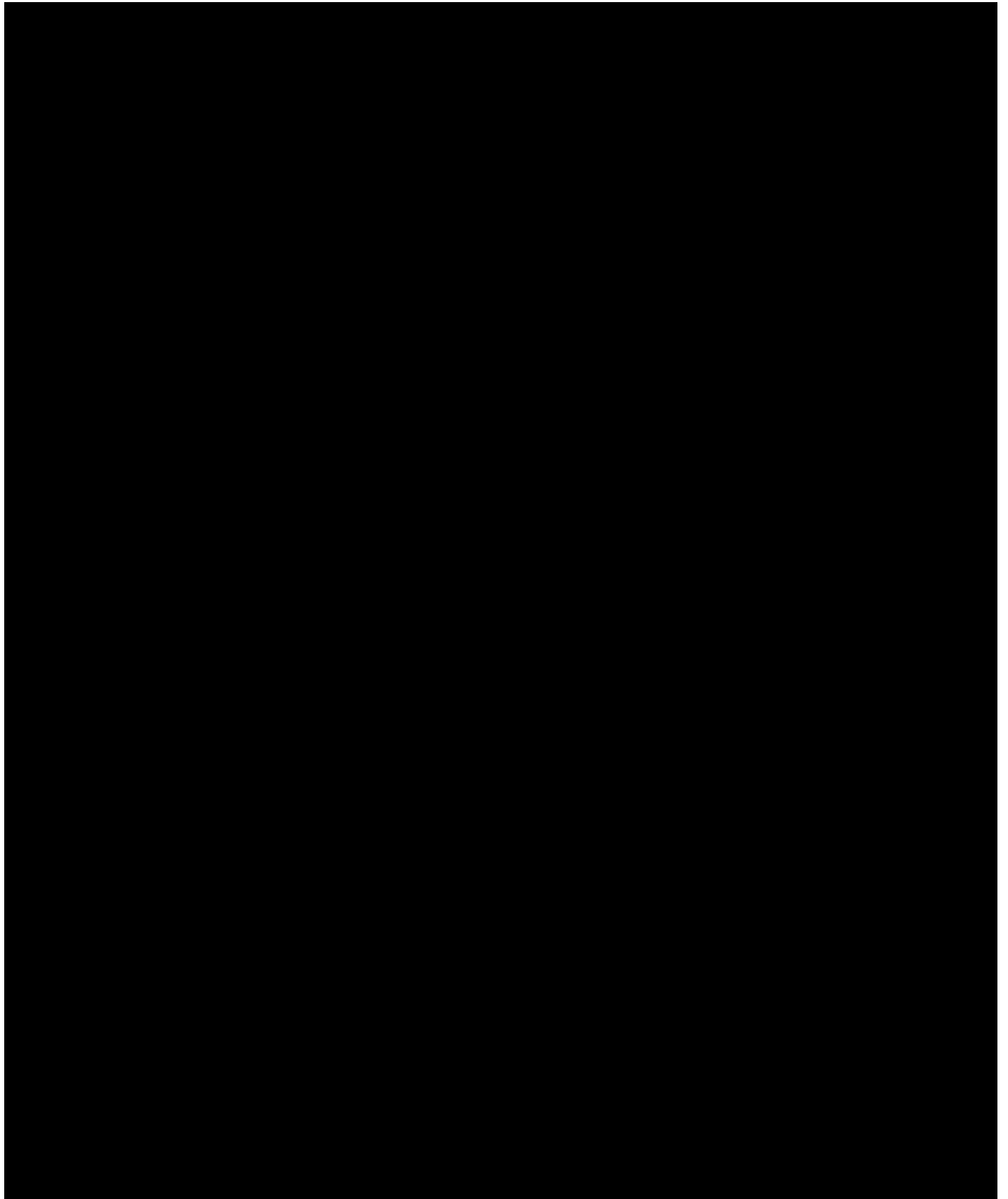


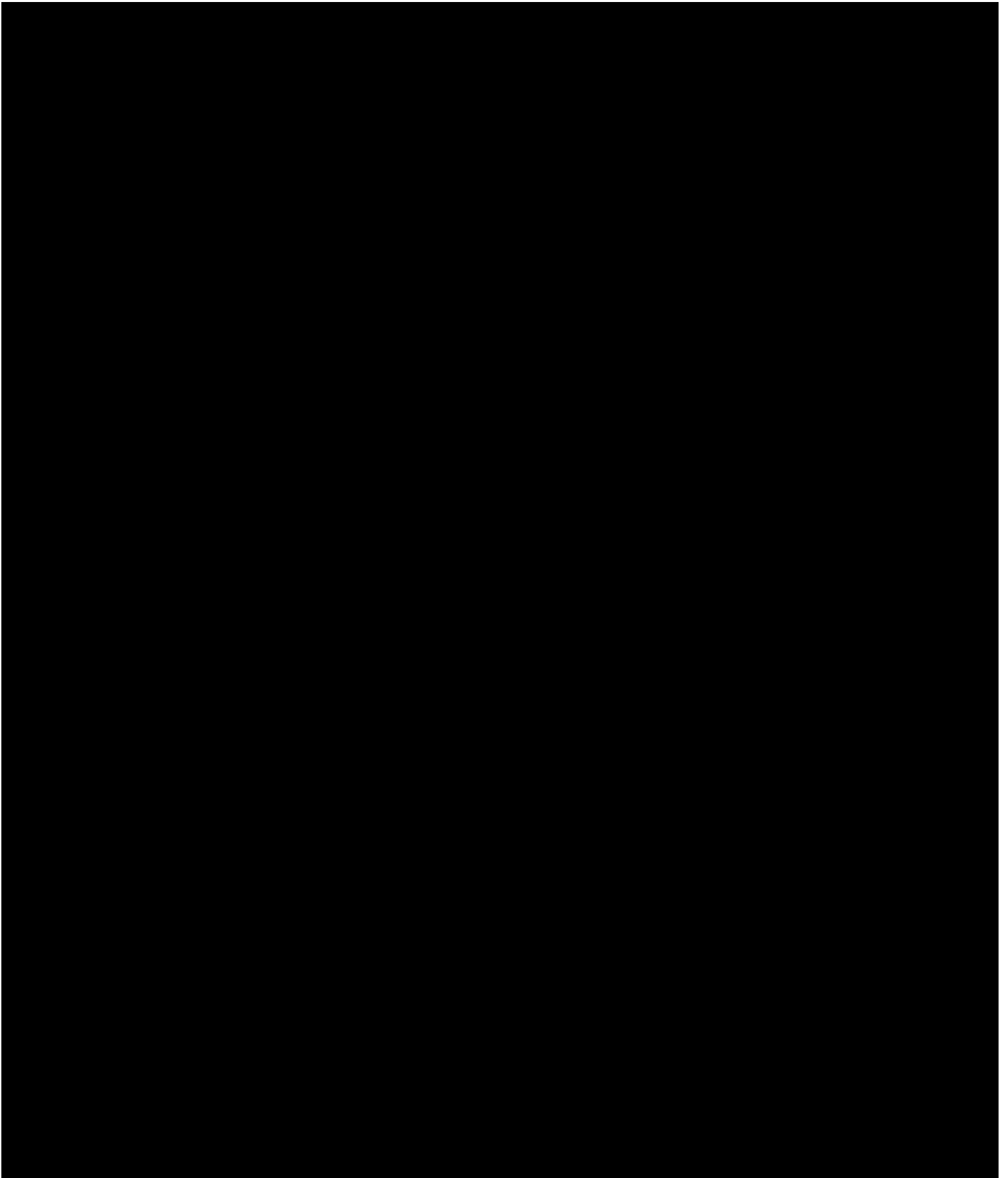


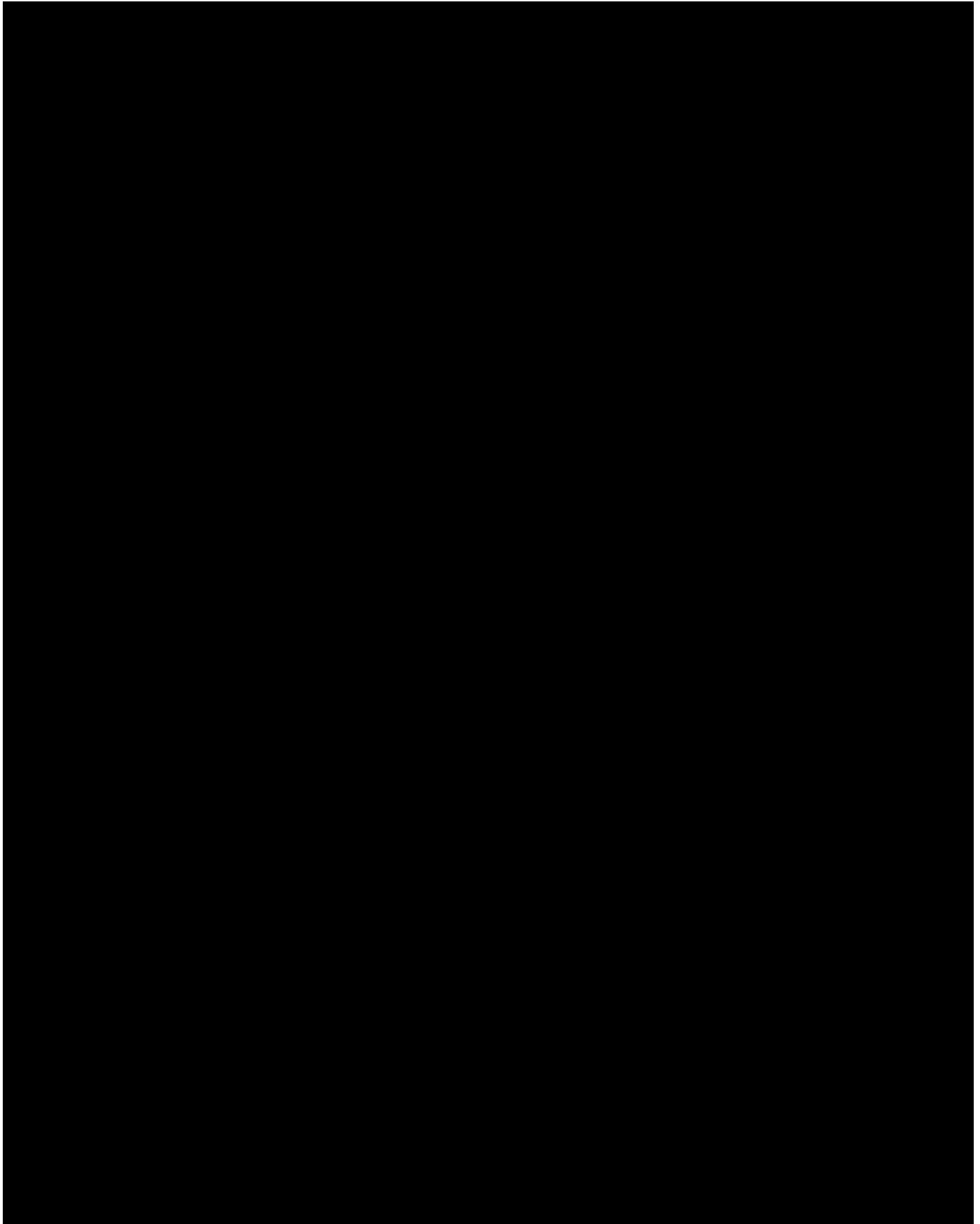


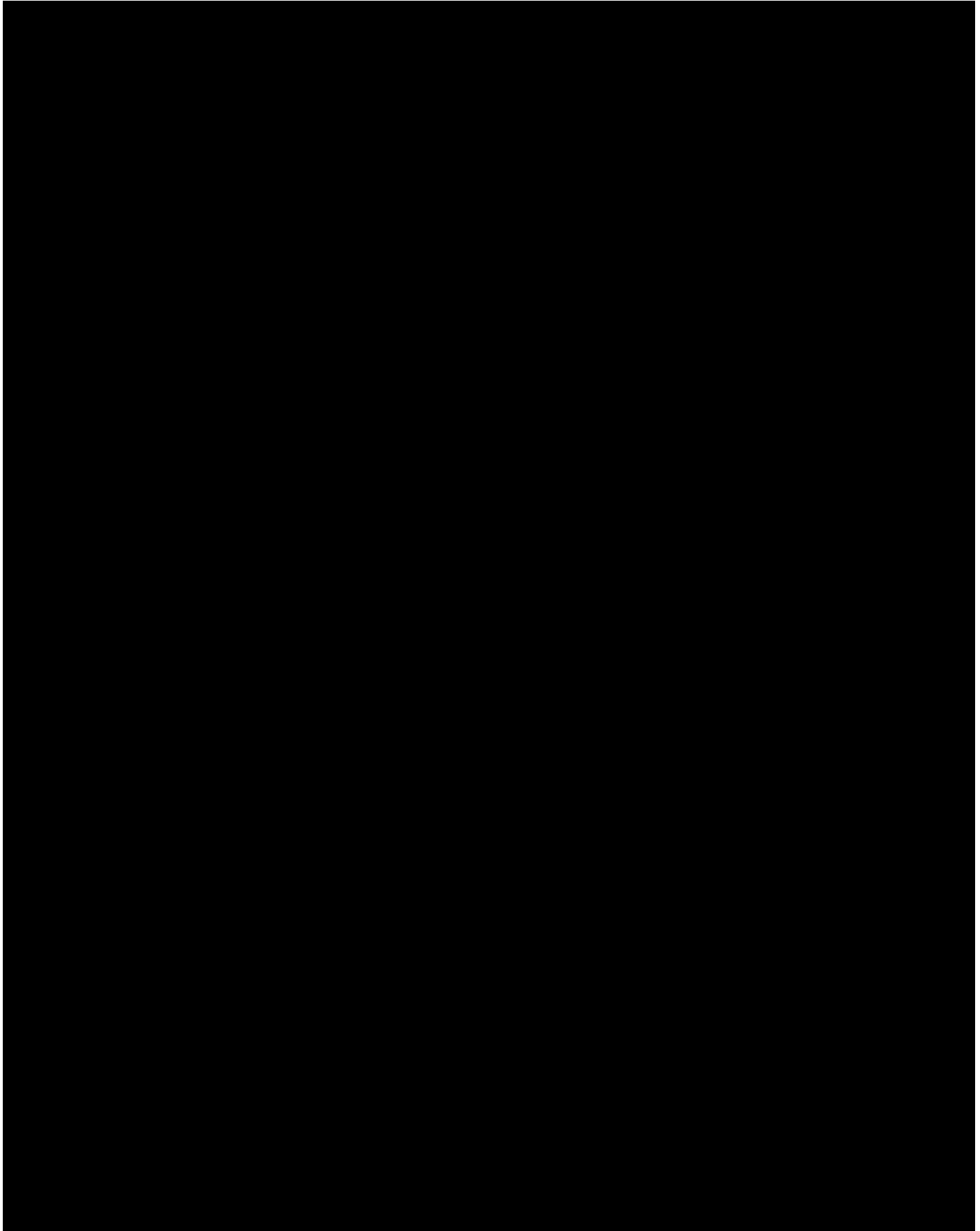


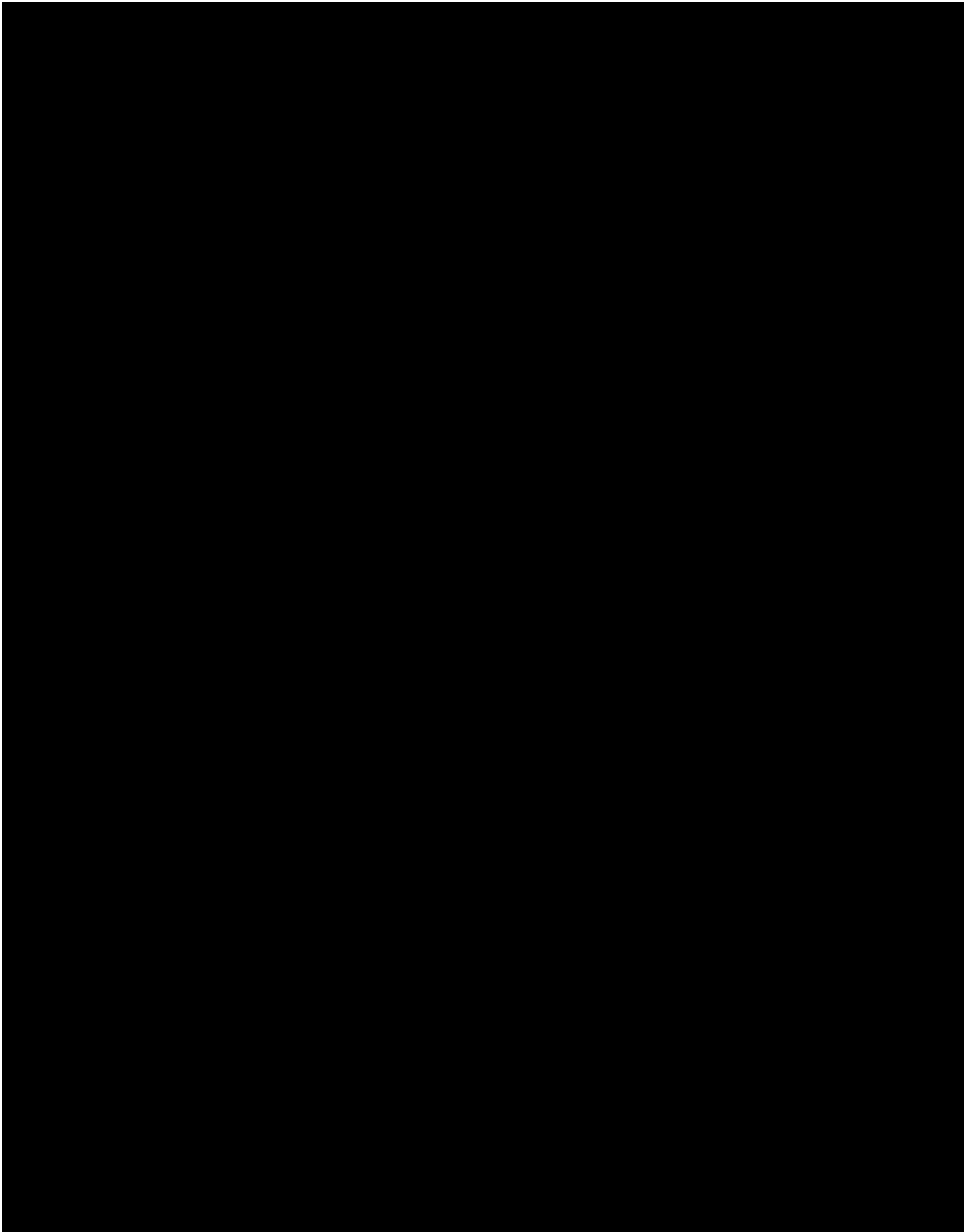


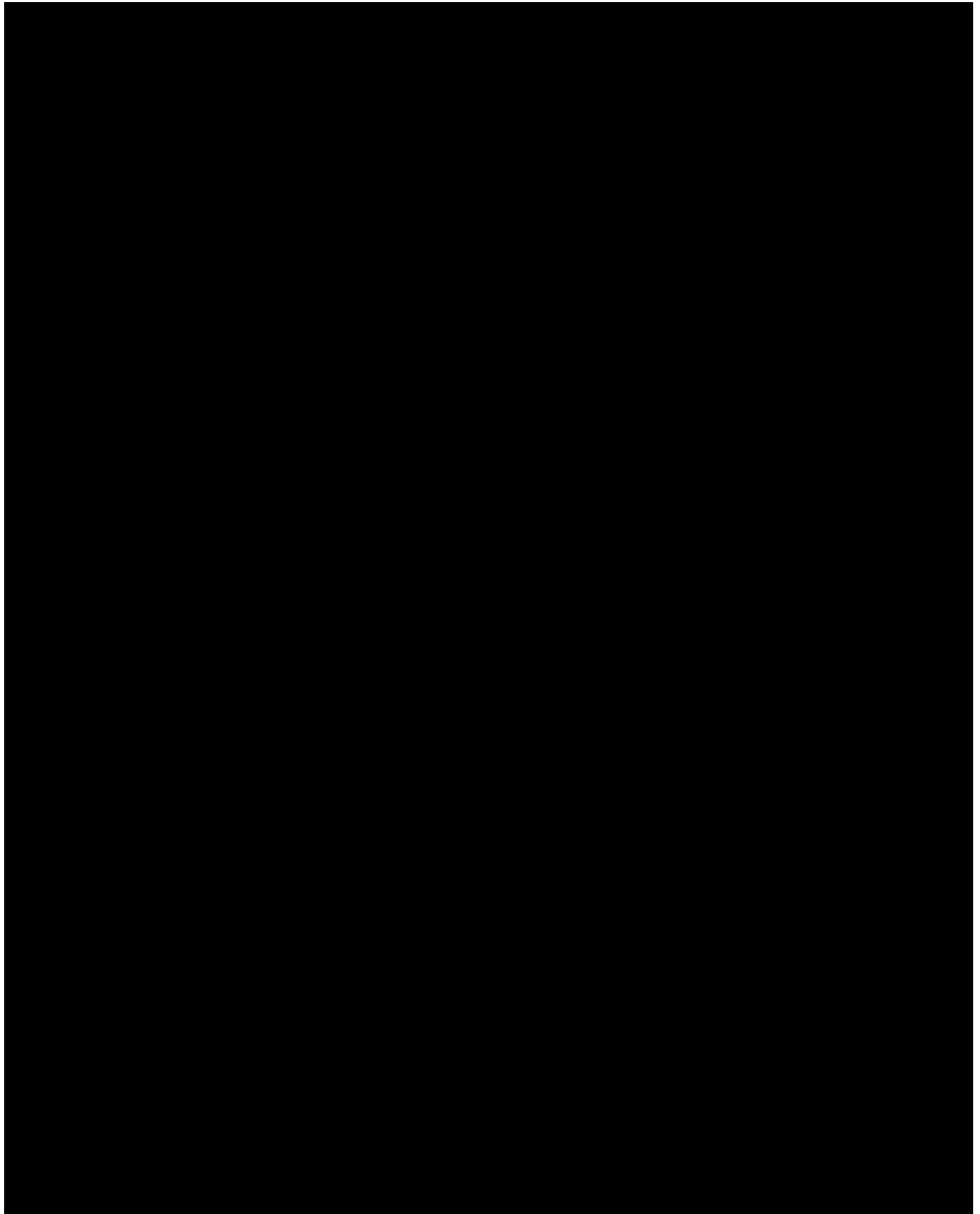


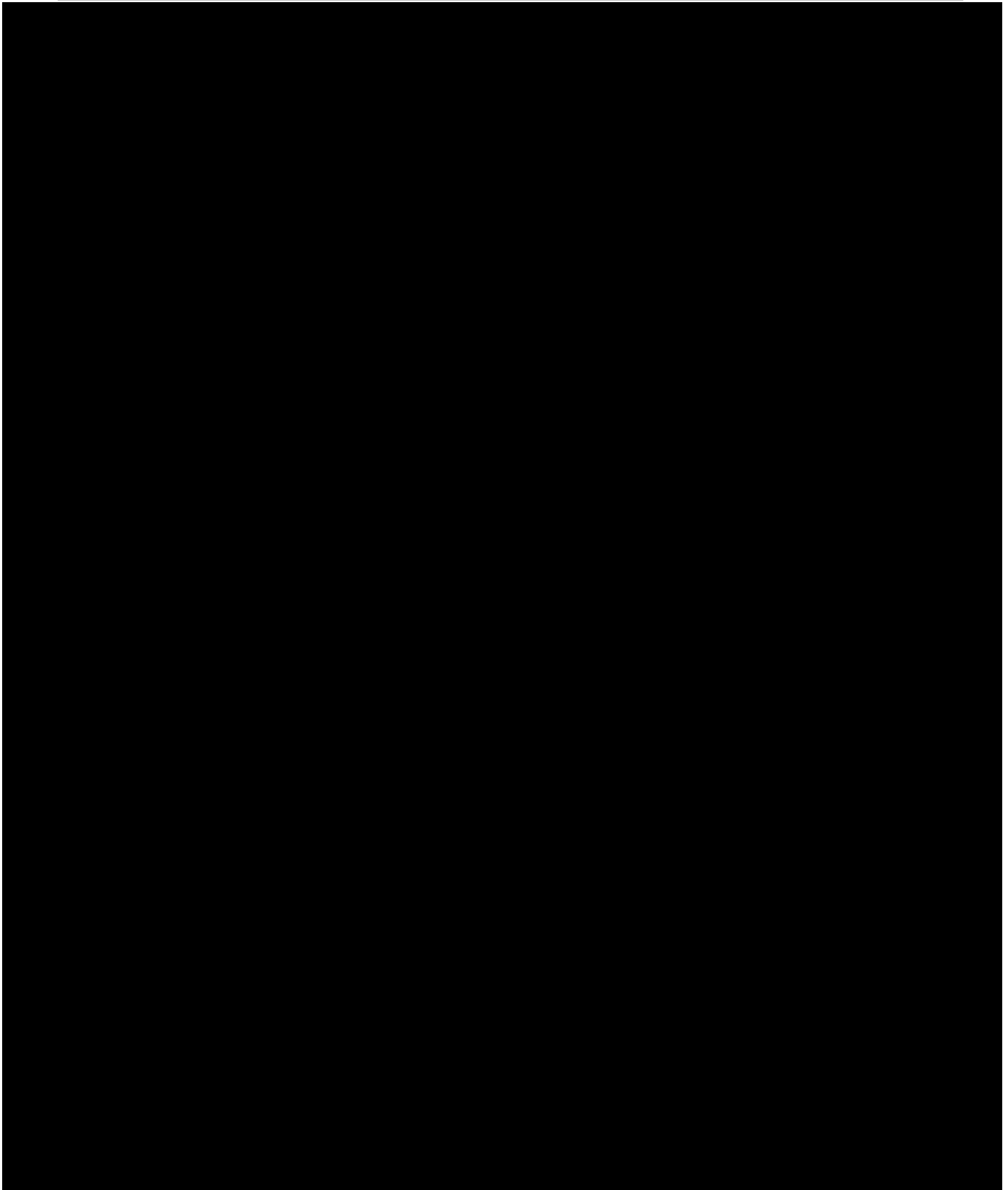












1.4.1.6.2.3 UI/UX Customer Website – Focus on Riders

Customer Website - Focus on Riders

Design an easy to use and accessible customer interface for ORCA Card holders

Phase & Service	Stakeholder TouchPoint	Target # of Customers for Testing/Research	Schedule
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DISCOVERY & RESEARCH

Establish usability goals and metrics for redesigned customer web site (task completion, time on task, satisfaction, errors)			3Q2018
Prepare key task flows and requirements			3Q2018
Presentation of findings for stakeholders	√		3Q2018

ITERATIVE DESIGN & USABILITY TESTING

UX concept

Prepare mobile first design concept			3Q2018
Gather feedback from stakeholders			3Q2018

Prototype & test

Develop responsive interactive wireframe (mobile, desktop) of major task flows			1Q2019
Diagnostic usability of the wireframe (remote, moderated)		12	1Q2019
Presentation of findings and recommendations for stakeholders	√		1Q2019

Visual design

Expand and apply visual design system (icons, typography, maps, imagery, buttons, controls, basic animations)			2Q2019
Presentation of design direction.	√		2Q2019
Iterate visual design system			2Q2019
Prepare high fidelity mockups			2Q2019
Gather feedback from stakeholders	√		2Q2019
Finalize high fidelity design mockups			2Q2019

UI/UX requirements package

Draft UI/UX requirements package			2Q2019
Gather feedback from stakeholders. Incorporate feedback.	√		3Q2019
Finalize UI/UX requirements package			3Q2019

Final stakeholder approval of UI/UX requirements package	✓	3Q2019
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DEVELOP & LAUNCH

High-fidelity responsive prototype & test

Develop high-fidelity prototype (INIT)		4Q2019-
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Review user interface during development. Provide guidance as needed.		4Q2019
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Final pre-launch usability study (lab based, 16 participants, including people with disabilities)	16	1Q2021
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Findings and recommendations report out for stakeholders	✓	1Q2021
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Development, testing and launch (INIT)

Finalize user interface development		
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Final approval from stakeholders	✓	
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Functional testing, UAT testing (INIT)		
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Launch		
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UI/UX PROJECT MANAGEMENT

Manage UI/UX schedule, budget, risks		Ongoing
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Facilitate meetings, agendas, track meeting minutes, to-do's		Ongoing
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Project admin and reporting		Ongoing
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Meetings and correspondence		Ongoing
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Note: The customer website will be a single website with varying levels of permissions, however the needs and goals of the customer groups (riders and institutional users) are different and unique. Therefore we have two parallel but separate workstreams for UI/UX to ensure that the website is designed to reflect and address their unique needs and pain points.

1.4.1.6.2.4 UI/UX Customer Website – Focus on Institutional Users

Customer Website – Focus on Institutional Users

Design an easy to use and accessible customer interface for institutional users

Phase & Service	Stakeholder TouchPoint	Target # of Customers for Testing/Research	Schedule
DISCOVERY & RESEARCH			
Focus groups with current business customers (10-12 ORCAbiz customers)		10	3Q2018
Contextual remote interviews with current business customers (via webex)		10	3Q2018
Establish usability goals, key task flows and requirements			3Q2018
Presentation of findings for stakeholders	√		3Q2018
ITERATIVE DESIGN & USABILITY TESTING			
UX concept			
Prepare design concept optimized for business users (reporting, bulk actions etc.)			3Q2018
Gather feedback from stakeholders	√		3Q2018
Prototype & test			
Develop interactive wireframe of major task flows			1Q2019
Diagnostic usability of the wireframe (remote, moderated study)		10	1Q2019
Presentation of findings and recommendations for stakeholders	√		1Q2019
Visual design			
Expand and apply visual design system (icons, typography, maps, imagery, buttons, controls, basic animations)			2Q2019
Presentation of design direction.	√		2Q2019
Iterate visual design system			2Q2019
Prepare high fidelity mockups			2Q2019
Gather feedback from stakeholders	√		2Q2019
Finalize high fidelity design mockups			2Q2019
UI/UX requirements package			
Draft UI/UX requirements package			3Q2019
Gather feedback from stakeholders. Incorporate feedback.	√		3Q2019

Finalize UI/UX requirements package		3Q2019
Final stakeholder approval of UI/UX requirements package		3Q2019

DEVELOP & LAUNCH

High-fidelity responsive prototype & test

Develop high-fidelity prototype (INIT)		4Q2019-
Review user interface during development. Provide guidance as needed.		4Q2019
Final pre-launch usability study (lab based, 14-16 participants)	15	1Q2021
Findings and recommendations report out for stakeholders	✓	1Q2021

Development, testing and launch (INIT)

Finalize user interface development		
Final approval from stakeholders	✓	4Q2020
Functional testing, UAT testing (INIT)		4Q2021
Launch		4Q2021

UI/UX PROJECT MANAGEMENT

Manage UI/UX schedule, budget, risks		Ongoing
Facilitate meetings, agendas, track meeting minutes, to-do's		Ongoing
Project admin and reporting		Ongoing
Meetings and correspondence		Ongoing

Note: The customer website will be a single website with varying levels of permissions, however the needs and goals of the customer groups (riders and institutional users) are different and unique. Therefore we have two parallel but separate workstreams for UI/UX to ensure that the website is designed to reflect and address their unique needs and pain points.

1.4.1.6.2.5 UI/UX Customer Mobile App

Customer Mobile App

Design an easy to use and accessible customer interface for the Mobile App

Phase & Service	Stakeholder TouchPoint	Target # of Customers for Testing/Research	Schedule
DISCOVERY & RESEARCH			
Peer heuristic evaluation of existing transit apps			3Q2018
Document user feature prioritization/usability requirements			3Q2018
Presentation of findings for stakeholders	√		3Q2018
ITERATIVE DESIGN & USABILITY TESTING			
UX concept			
Prepare design concept			4Q2018
Gather feedback from stakeholders	√		4Q2018
Prototype & test			
Develop responsive interactive wireframe of major task flows			1Q2019
Diagnostic usability of the wireframe (field study)		15	1Q2019
Presentation of findings and recommendations for stakeholders	√		1Q2019
Visual design			
Expand and apply visual design system (icons, typography, maps, imagery, buttons, controls, basic animations)			2Q2019
Presentation of design direction.	√		2Q2019
Iterate visual design system			2Q2019
Prepare high fidelity mockups			2Q2019
Gather feedback from stakeholders	√		3Q2019
Finalize high fidelity design mockups			3Q2019
UI/UX requirements package			
Draft UI/UX requirements package			3Q2019
Gather feedback from stakeholders. Incorporate feedback.	√		3Q2019
Finalize UI/UX requirements package			3Q2019

Final stakeholder approval of UI/UX requirements package	✓	3Q2019
DEVELOP & LAUNCH		
High-fidelity responsive prototype & test		
Develop high-fidelity prototype (INIT)		4Q2019-
Review user interface during development. Provide guidance as needed.		4Q2019
Pre-launch usability study (in combination with hardware to test mobile payment)	18	4Q2020
Findings and recommendations report out for stakeholders	✓	4Q2020
Iterate prototype (INIT) based on findings from the usability study (INIT, AT reviews)		
Development, testing and launch (INIT)		
Finalize user interface development		
Final approval from stakeholders	✓	
Functional testing, UAT testing (INIT)		
Launch		4Q2021
UI/UX PROJECT MANAGEMENT		
Manage UI/UX schedule, budget, risks		Ongoing
Facilitate meetings, agendas, track meeting minutes, to-do's		Ongoing
Project admin and reporting		Ongoing
Meetings and correspondence		Ongoing

1.4.1.6.2.6 UI/UX Other Interfaces

Other Interfaces

UI/UX for agency mobile apps, onboard/wayside validators, driver display units and other interfaces

Phase & Service	Stakeholder TouchPoint	Target # of Customers for Testing/Research	Schedule
Onboard/wayside validators (customer facing)			
UI/UX best practices/peer review			3Q2018
Expert UI/UX review of INIT's OOTB (out of the box) interface			4Q2018
Capture customer task flows / use cases			1Q2019
Prepare design / content recommendations. Align with ngORCA design system			2Q2019
Gather feedback from stakeholders. Incorporate feedback	✓		2Q2019
Finalize mock-ups for UX design			3Q2019
Final stakeholder approval	✓		3Q2019
Mobile App Fare Inspection (agency facing)			
Interview and observe fare inspectors to understand use cases, needs, pain points and suggestions for improvement			4Q2018
Expert UI/UX review of INIT's OOTB (out of the box) interface			1Q2019
Capture customer task flows / use cases			2Q2019
Prepare design / content recommendations. Align with next gen ORCA design system			3Q2019
Gather feedback from stakeholders, including fare inspectors. Incorporate feedback	✓		3Q2019
Finalize mock-ups for UX design			3Q2019
Final stakeholder approval	✓		3Q2019
Driver Display Unit (agency facing)			
Interview and observe bus-drivers to understand use cases, needs, pain points and suggestions for improvement			4Q2018
Expert UI/UX review of INIT's OOTB (out of the box) interface			4Q2018-
Capture customer task flows / use cases			4Q2018
Prepare design / content recommendations. Align		18	1Q2019

with next gen ORCA design system		
Gather feedback from stakeholders, including fare inspectors. Incorporate feedback	✓	1Q2019
Finalize mock-ups for UX design		1Q2019
Final stakeholder approval	✓	1Q2019
Customer Service Terminal Software (agency facing)		
Interview and observe users to understand use cases, needs, pain points and suggestions for improvement		2Q2019
Expert UI/UX review of INIT's OOTB (out of the box) interface		2Q2019
Capture customer task flows / use cases		2Q2019
Prepare design / content recommendations. Align with next gen ORCA design system		3Q2019
Gather feedback from stakeholders, including fare inspectors. Incorporate feedback	✓	3Q2019
Finalize mock-ups for UX design		3Q2019
Final stakeholder approval	✓	3Q2019
MOBILEvario - MOBILEsymon (agency facing)		
Interview and observe users to understand use cases, needs, pain points and suggestions for improvement		2Q2019
Expert UI/UX review of INIT's OOTB (out of the box) interface		2Q2019
Capture customer task flows / use cases		2Q2019
Prepare design / content recommendations. Align with next gen ORCA design system		3Q2019
Gather feedback from stakeholders, including fare inspectors. Incorporate feedback	✓	3Q2019
Finalize mock-ups for UX design (1-3 focused mockups)		3Q2019
Final stakeholder approval	✓	3Q2019

1.4.1.7 Maintainability & Serviceability

Given INIT's extensive experience with transit CAD/AVL and AFC systems, INIT has ruggedized its field equipment to require minimal scheduled and unscheduled maintenance. As the chart below indicates, most of the equipment is maintenance-free, and there is minimal scheduled maintenance on some mechanical moving parts.



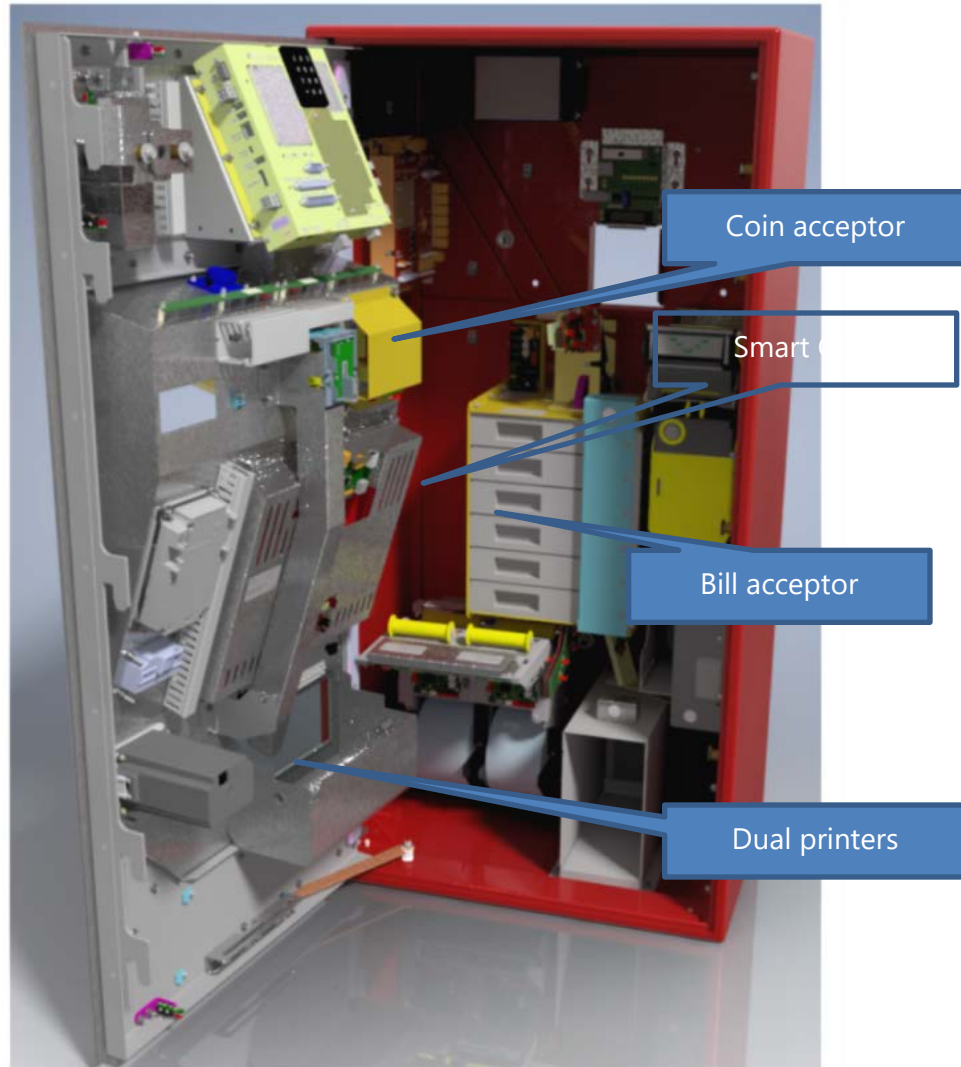
Equipment	Scheduled Preventative Maintenance Requirement (Not Including Consumables – such as, printer paper)
PROXmobil3 onboard/platform validator	Possibly change battery (after 5-10 years)
TOUCHit3 Driver Display Unit (DDU)	None (maintenance-free)
VENDstation and VENDmobile Vending Machines (VMs)	Minimal (lubrication of some moving mechanical parts annually, and compressed air spraying of sensors every 6 months)
Customer Service Terminal (including peripherals)	None (maintenance-free)

All the scheduled, preventative maintenance required – including frequency, procedures, durations, and required tools, parts, and materials – will be provided by INIT in a Preventative Maintenance Plan.

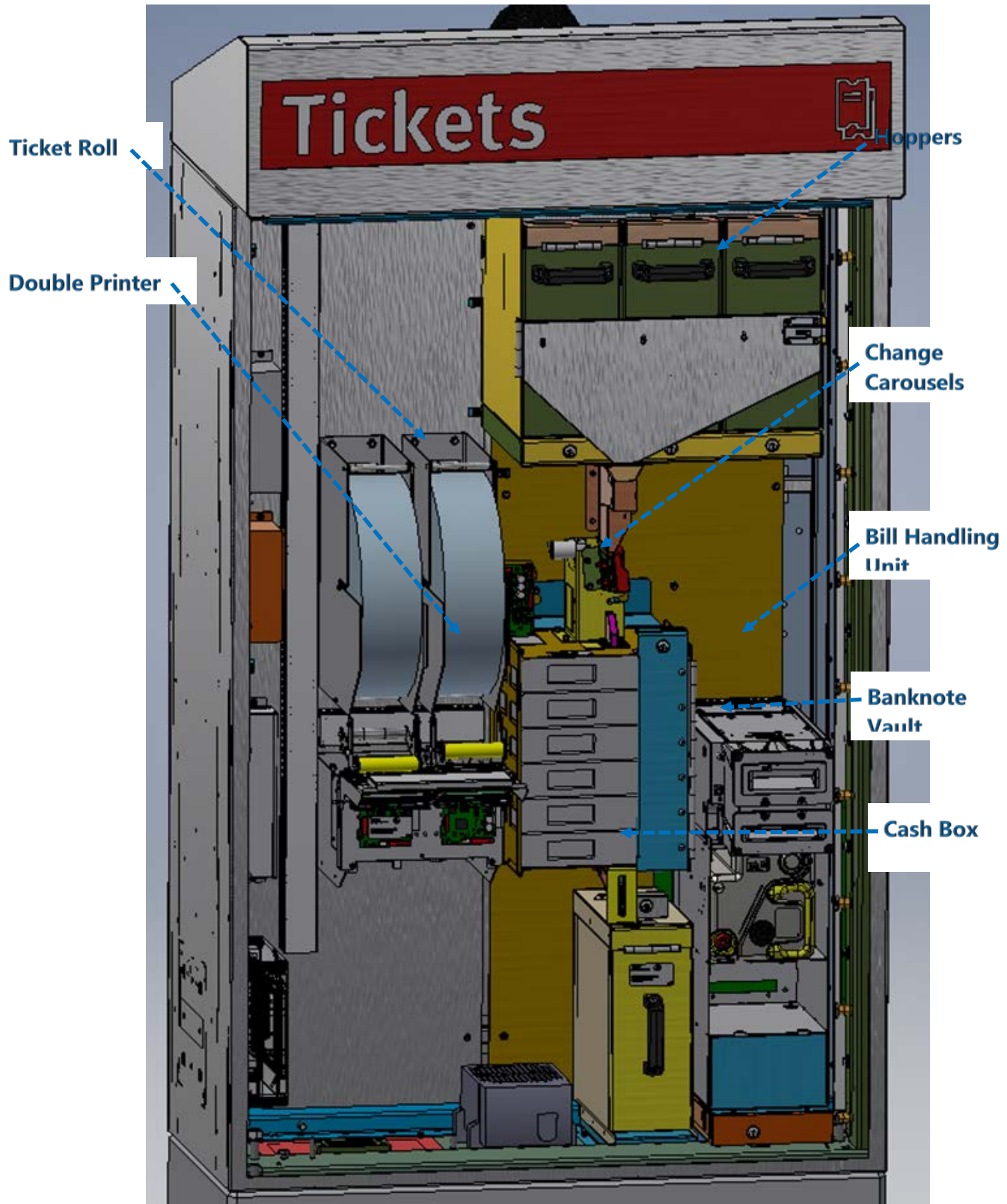
System components include automatic diagnostic test routines to aid in troubleshooting down to the Lowest Level Replaceable Unit (LLRU). As the chart below indicates, most of the equipment is maintenance-free, and there is minimal scheduled maintenance on some mechanical moving parts.

INIT minimizes unscheduled maintenance by designing equipment suitable for the transit industry with high Mean Time Between Failures (MTBF). INIT ensures that any COTS components used, also possess these characteristics.

The placement of the Onboard and Wayside Validators, the Driver Display Units, and the Customer Service Terminal equipment will be finalized jointly with the agencies to ensure adequate access for maintenance. INIT's field equipment has been designed and optimized taking maintenance considerations into account. The interior of housings and cabinets provides easy and safe access, and provides adequate space to work on the internal components as indicated in the figures below of the VENDstation and VENDmobile, which show that all components are accessible.



Inside view of the VENDmobile LFVM showing accessibility to all components



Inside view of the VENDstation FFVM showing accessibility of all components

As indicated in the above two figures, the different modules are on rails and tracks and include handles for easy removal and insertion. This modularized design also leads to lower weight modules that a single technician can replace – none of the modules, other than a full cash containers, weighs more than 20 lbs.



INIT's use of Quick Lock connectors facilitates tool-free, rapid connector insertion/removal

As indicated in the figure above, INIT uses Quick Lock connectors to facilitate tool-free, rapid insertion/removal of components and subassemblies. The figure demonstrates the use of strain relief to prevent damage to cables and connectors and clear labelling of wiring connections – safety warnings and servicing steps are also labelled where appropriate.

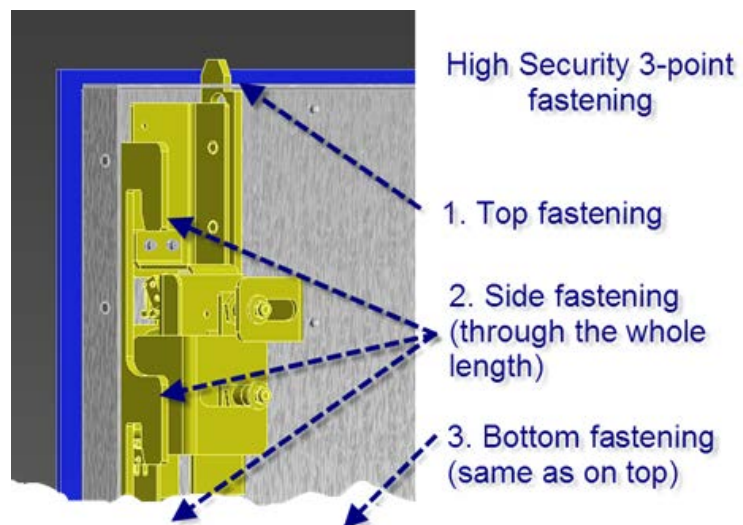
As the above vending machines figures illustrate, components requiring frequent maintenance – such as, the cash containers, printer paper rolls, card stack, etc. – are positioned for easy access. The modularized design leading to lower weight replaceable units and the accessible location of modules allow corrective maintenance to be conducted by lone technicians. INIT's VMs' local computing power provided by the VENDpc and VENDpc Extension provide for a software driven solution allows upgrades and configuration changes without component replacement or

redesign – the changes only require the upgrading of the VENDpc and VENDpc Extension upgrades.

In addition to providing quick field devices' replacement (as described above), INIT field devices very secure replacement. The VMs provide extensive locking (as described below), and require a technician to enter a maintenance password upon door opening to avoid an alarm condition.

The VM lock is hidden by a cover. After opening the mechanical locking cylinder, it can be removed. Behind the locking cylinder is the handle used to open and close the locking bar. The door is locked to the housing by a robust 3 side fastening mechanism and an electronic lock (Cyber Lock or equivalent). Sensors detect the status of the outer door lock. The VM door shall be considered open and unsecure if the outer door lock is not in the fully locked position. All security locks capture and hold the key whenever the lock is open.

Keys can only be ordered by authorized persons.



Additional door security

The PROXmobil3 is secured to the mounting plate by a security lock using a cylinder lever lock with 1 lever and 5 pin tumblers model number MK5 2700 manufactured by ZIKON (Assa Abloy).



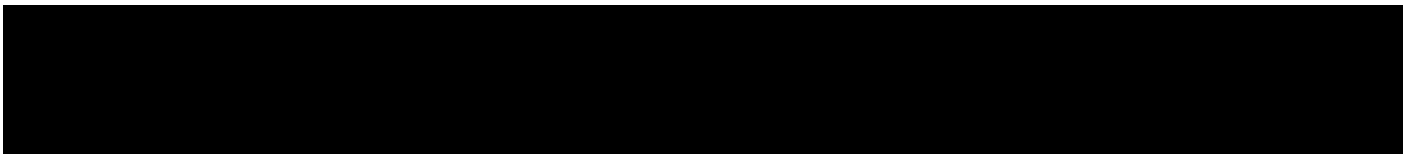
Security lock MK5 2700

The lock is integrated in the lower part of the mounting plate and prevents access to the fixation screw for demounting the device from the mounting accessory. The locking mechanism covers the opening of the fastening screw with the bar of the lock. The key can be removed in locked state only.

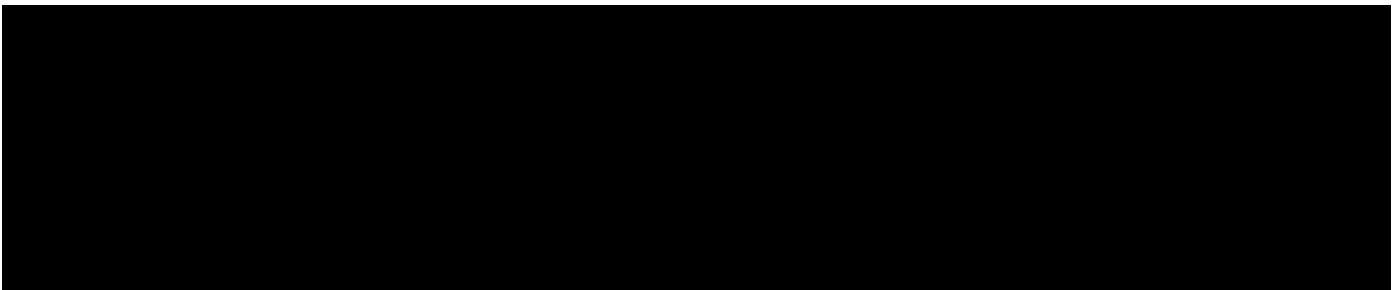
1.4.1.8 System Sizing & Scalability

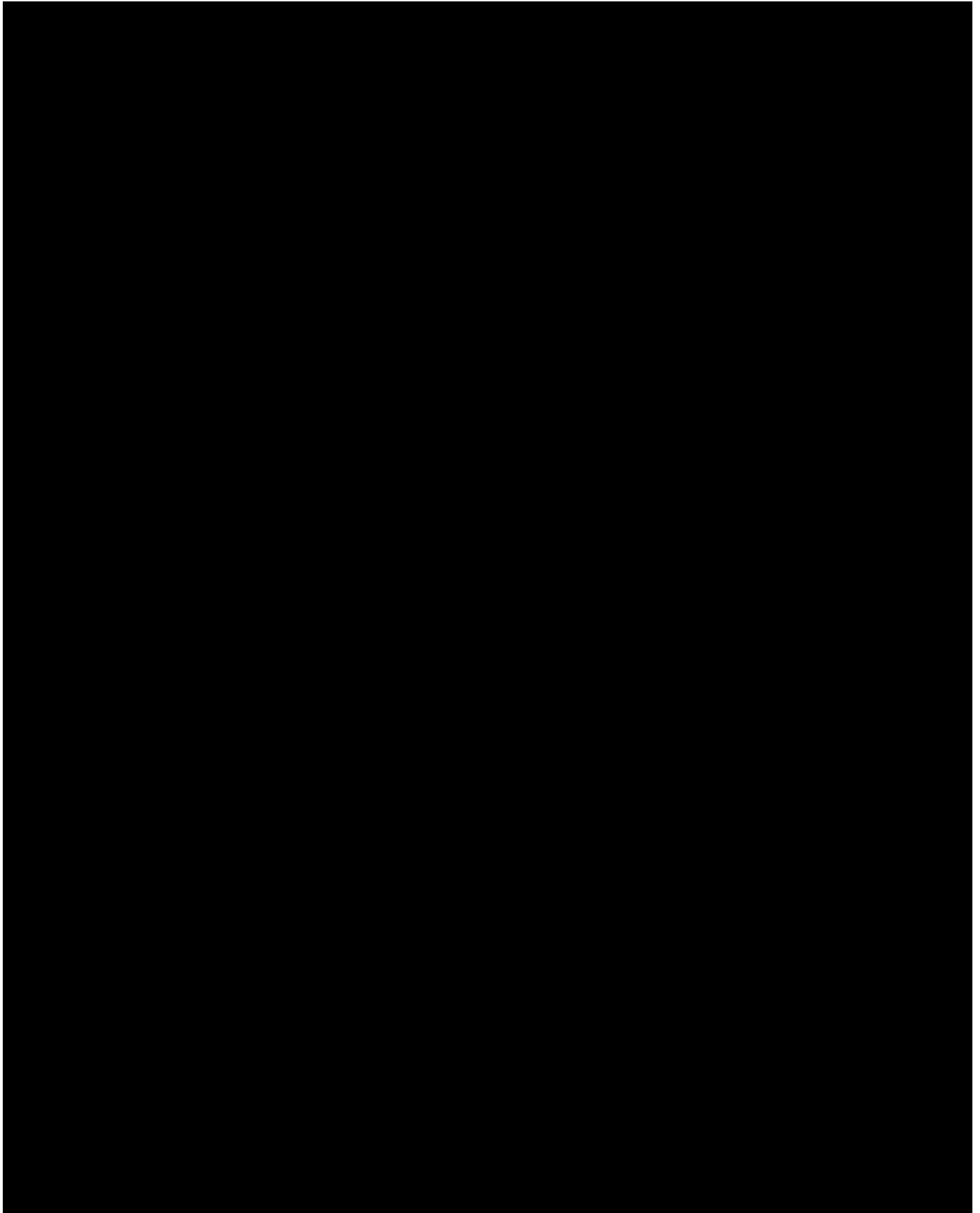
As part of the design process, INIT conducts usage and transaction analysis to model the peak usage of the System – including peak concurrent account-based transactions, peak website usage, etc. – and designs the system to accommodate at a minimum 200% of the current and anticipated ridership figures for the year 2040 and up to 400% of the anticipated peak processing load.

1.4.1.9 Operating Environment



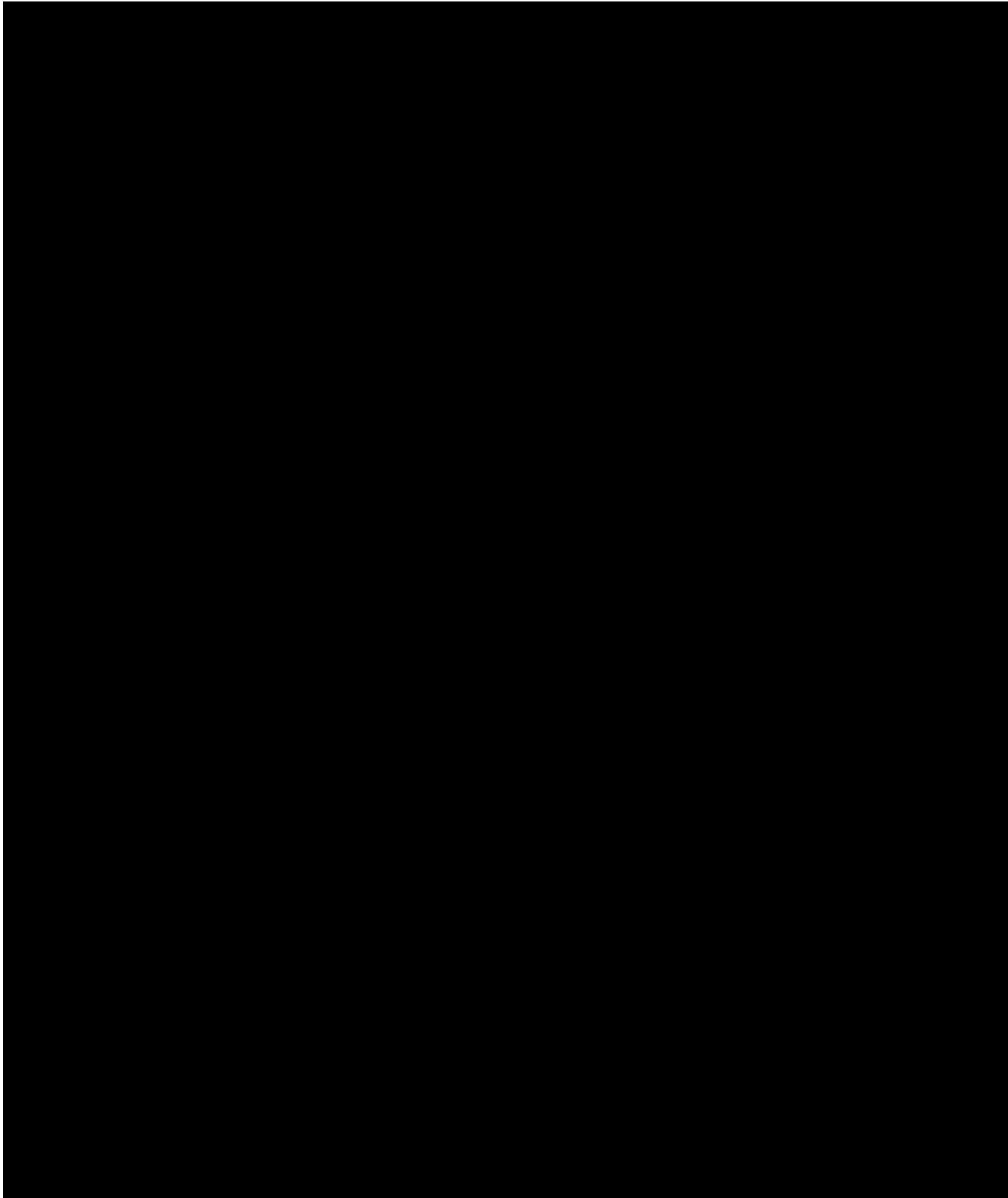
1.4.1.9.1 Shock & Vibration

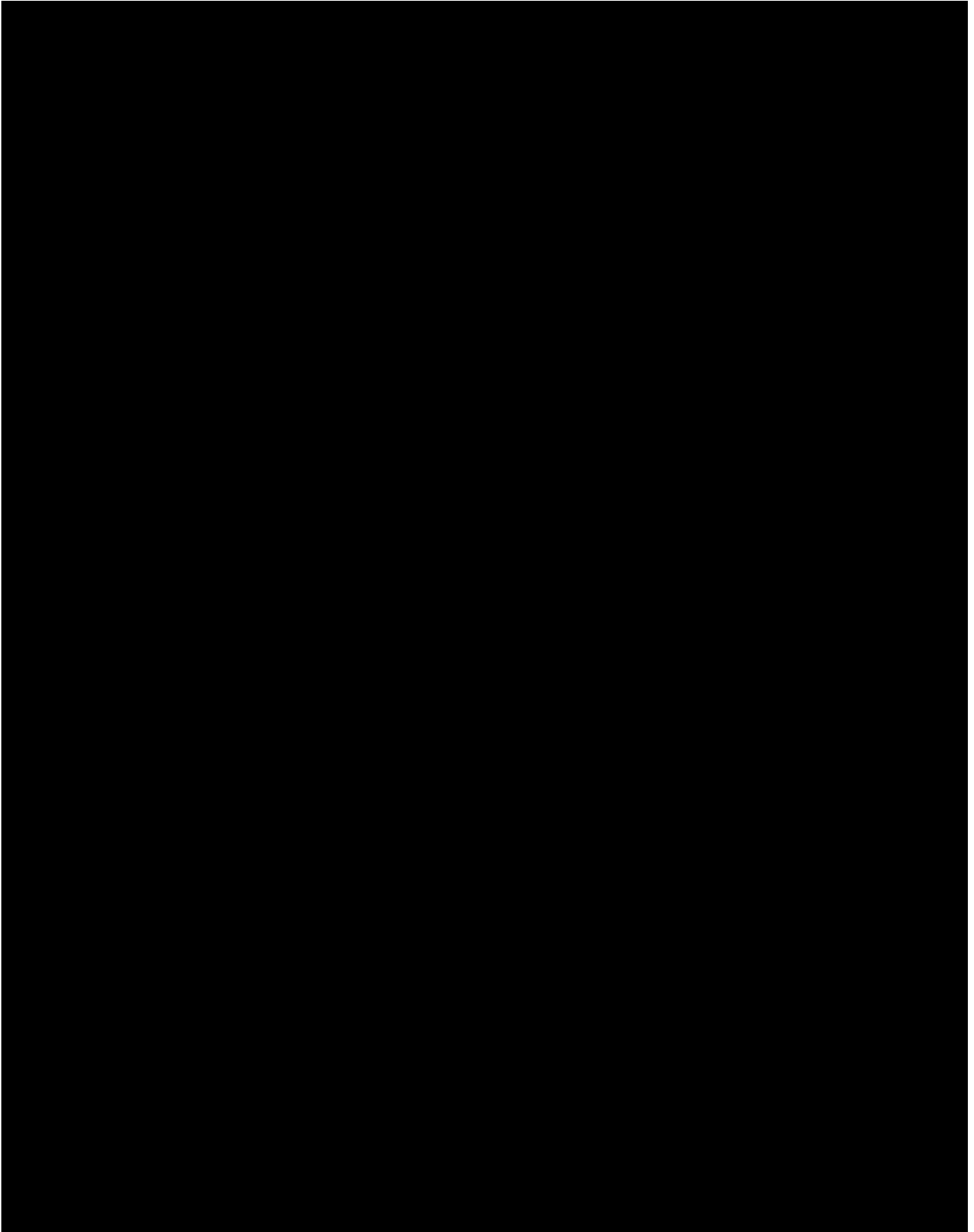


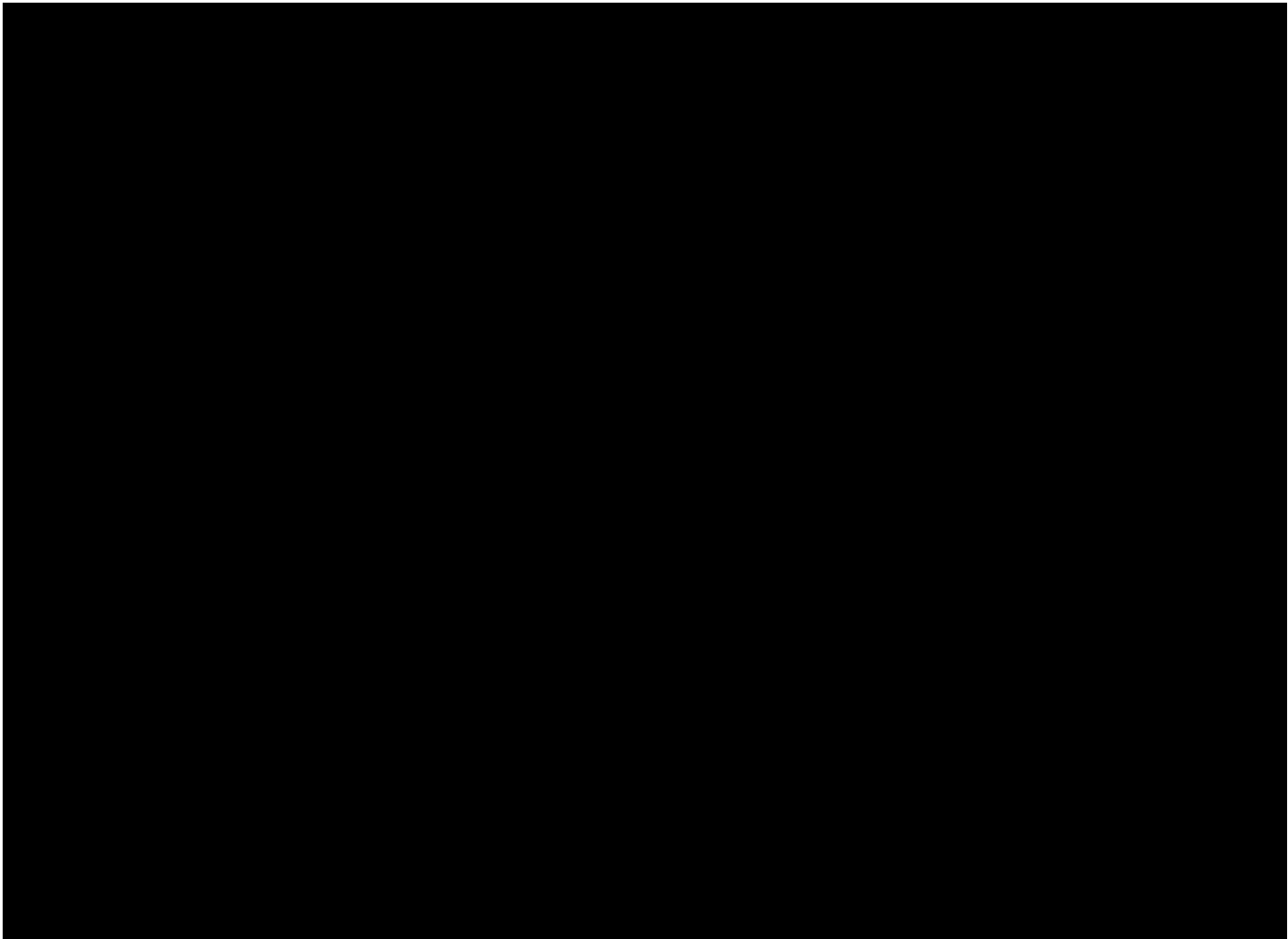




1.4.1.9.2 Onboard Equipment





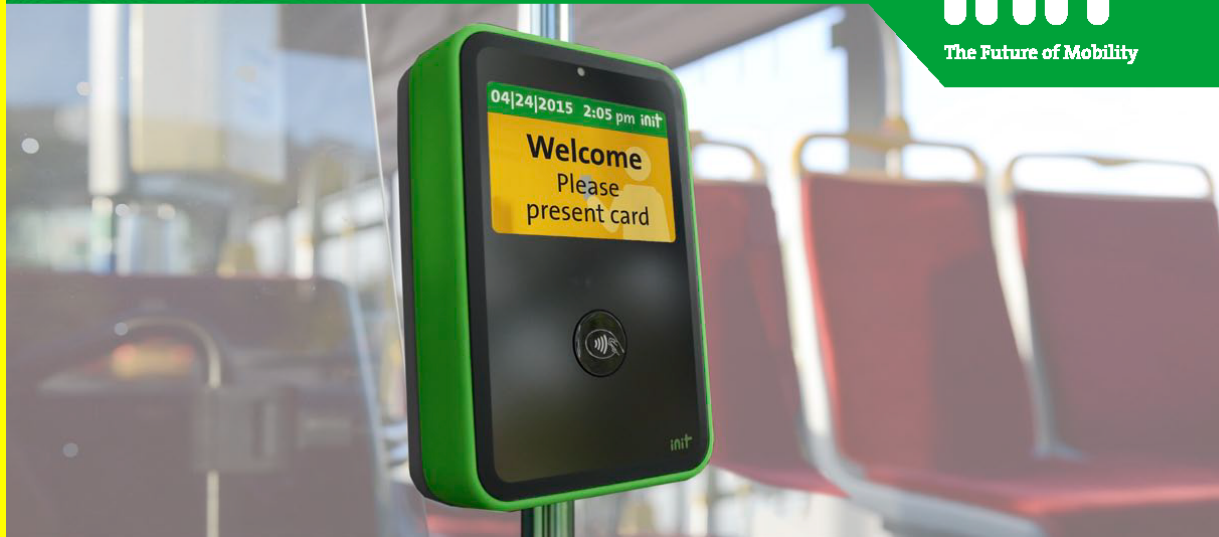


1.4.1.9.2.1 PROXmobil3 DataSheet

PROXmobil3

Passenger Terminal

init
The Future of Mobility



Flexible, fast and secure

An easy-to-use fare collection system makes public transportation more attractive. Especially now that electronic fare management and passenger-operated terminals are in great demand.

Like its predecessor, INIT's new passenger terminal PROXmobil3 supports all variations of e-ticketing. The housing is more sleek taking up less aisle space on the vehicles.

With its 12.0 cm (4.75-inch) display PROXmobil3 offers passengers a convenient and intuitive way to manage all their ticketing transactions. For instance, they can select the ticket that is best suited for their needs, store tickets on smart cards, or validate bar code tickets. VDV-KA, ITSO, Calypso and boarding control are supported, as well as credit card based applications according to the EMV standard or account-based ticketing. The software supports different standards, even combined in one system.

The intelligent terminal can be operated as well as a stand-alone device as it is equipped with WLAN and GPRS/UMTS. PROXmobil3 is available in two versions: for mobile use inside vehicles and for stationary use at platforms.

Features

- ✔ Contactless payment in the vehicle
- ✔ Controlled boarding
- ✔ Check-in / check-out
- ✔ Automatic fare calculation
- ✔ EMV, NFC
- ✔ On-board or at platforms
- ✔ Easy installation

PRODUCT INFORMATION

Passenger Terminal

PROXmobil3

- Support of different standards (VDV-KA, ITSO, Calypso, etc.)
- Hybrid card reader
- Compact housing
- Back-up storage of sales data on a µSD card in the mounting plate

Technical Data

Display	12.0 cm [4.75"] Diameter 754 X 480 dots 262k colors 900 cd/m² LED-backlight (controlled) Projected Capacitive Touch (optional)
Processor and Memory (RAM)	32-Bit ARM Cortex-A9 800 MHz 512 MByte DDR3L
Memory (Flash)	2 x 1 GByte µSD-card
Interfaces and Modules	Ethernet 10/100 Mbit WLAN IEEE802.3 a/b/g/n (optional) UMTS/LTE (optional) 2D Barcode scanner (optional) Audio output
Contactless RFID Reader	Chip cards (contactless): ISO 14443 a/b; Mifare(R) EMVCo Level2 (Mastercard, Visa, American Express, Discover), PCI PTS SRED certified optional: – VDV-KA – ITSO – Calypso NFC reader compliant Up to 4 safety modules (ISO 7816)
Power Supply	8 V – 33 V; max. 10 Watt
Dimensions	140 mm [5.5"] x 212 mm [8.3"] x 41 mm [1.6"] (width x height x depth) Installation using quick-change bracket; device secured by lock
Weight	approx. 1.1 kg [2.43 lbs]

All information in this data sheet are to be perceived as proposals for configuration and don't necessarily belong to the basic scope of supply. The product is individually set up in accordance with customer requirements and corresponding commissioning.

INIT

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1.4.1.9.2.2 TOUCHit3 DataSheet

There is not a datasheet for the TOUCHit3 at this time. Below please find the datasheet for our TOUCHit2. The TOUCHit3 utilizes similar circuitry as the highly proven TOUCHit2, but with the following enhancements:

- Use of a capacitive (as opposed to a resistive) touchscreen for a brighter and sharper display, and a more responsive touch
- Independent standalone power circuitry as opposed to being dependent on the COPILOTpc2 onboard computer

TOUCHit2

Ergonomic Touch Screen Data Terminal

init
The Future of Mobility



Improved features of proven technology

TOUCHit2 is the 16.5 cm (6.5"), full-color touch screen that is ergonomically designed to provide essential information to drivers at a glance. Thanks to the fully graphical touch panel, maps and route displays and much more can be clearly displayed on the screen. The terminal also offers turn by turn navigation. All pertinent information is easy to grasp and functions are easy to operate, providing more efficiency to the driver.

TOUCHit2 is designed with a high resolution touch screen of 800 x 480 pixels giving drivers easy to read information even in bright sunlight. The improved display comprises LED backlights adjusting automatically to ambient light conditions. It also provides an easier light setting for night mode.

With its user friendly touch panel and outstanding readability of the display, TOUCHit2 is a sound investment for transportation companies worldwide.

Features

- Ergonomic design
- Flexible display layout
- Full-color touch screen graphics
- Customer-tailored display layout
- Custom functionalities can be added

PRODUCT INFORMATION

Ergonomic Touch Screen Data Terminal

TOUCHit2

- Automatic adaptation to the ambient lighting conditions
- Anti-glare touch screen
- 1 million touches guaranteed
- Connection to on-board computer via Ethernet with integrated power supply
- Double head operation possible (up to 60 m)

Technical Data

Display	Graphic 6.5" [16.5 cm] TFT display, 800 x 480 dots, brightness up to 600 cd/m² LED backlight with automatic brightness control and 70,000 hours operating lifetime 0.5 – 100 % wide range dimming
Touch screen	Analog resistive touch screen 0.07" [1.8 mm] thickness ITO-glass antireflection coating
CPU	Freescall i.MX6 Solo (ARM Cortex A9) with 800 MHz, 512 MB RAM, 4GB Flash
Touch controller	Texas Instruments TSC2046E
Interfaces	Ethernet 10/100 Mbit/s (with integrated power supply)
Power supply	Input voltage range 8 V to 36 V Max. voltage of 1.5 A
Dimensions	7.3" [185 mm] x 4.1" [105 mm] x 1.4" [36 mm] (width x height x depth)
Weight	1.32 lbs [0.6 kg]

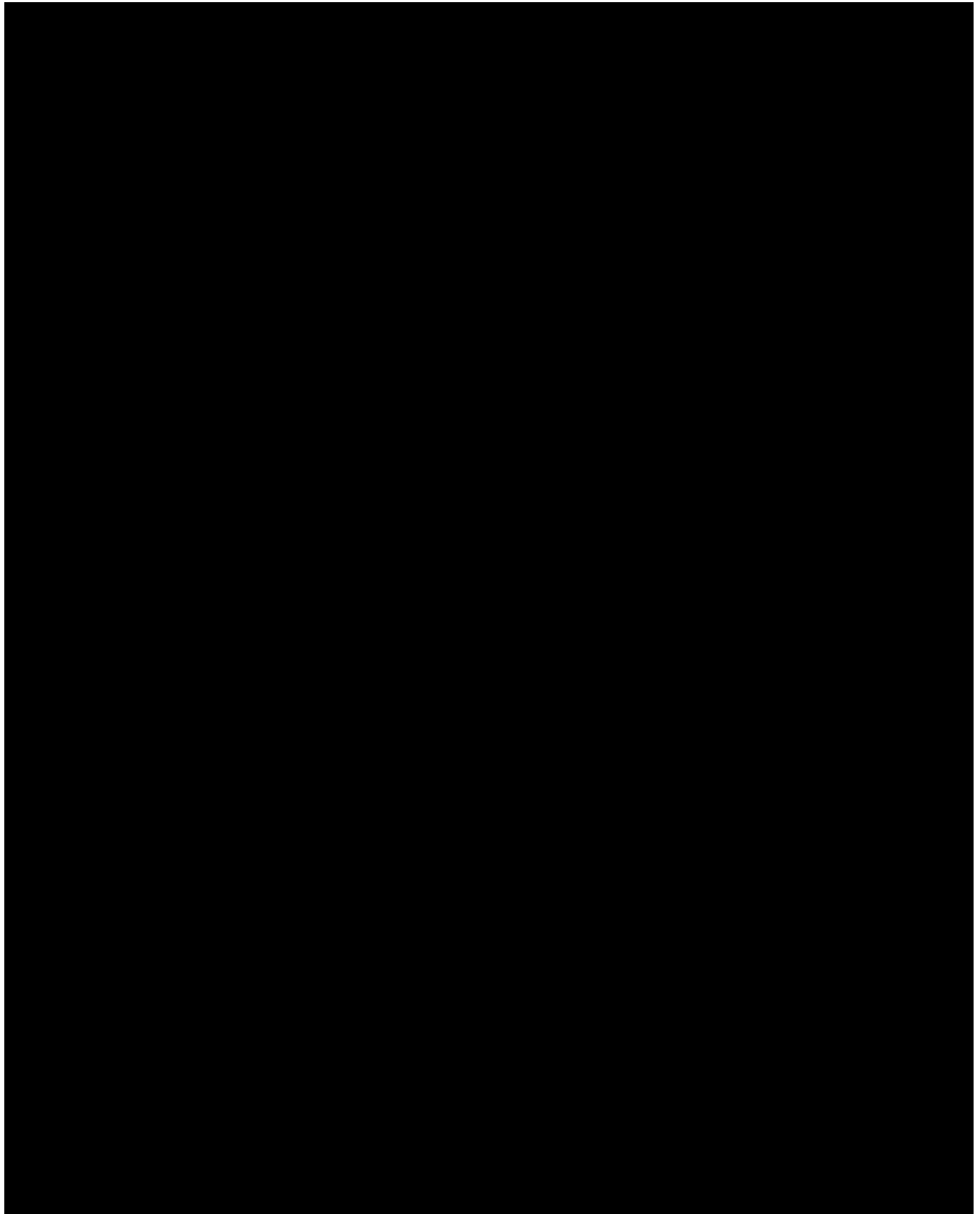
INIT

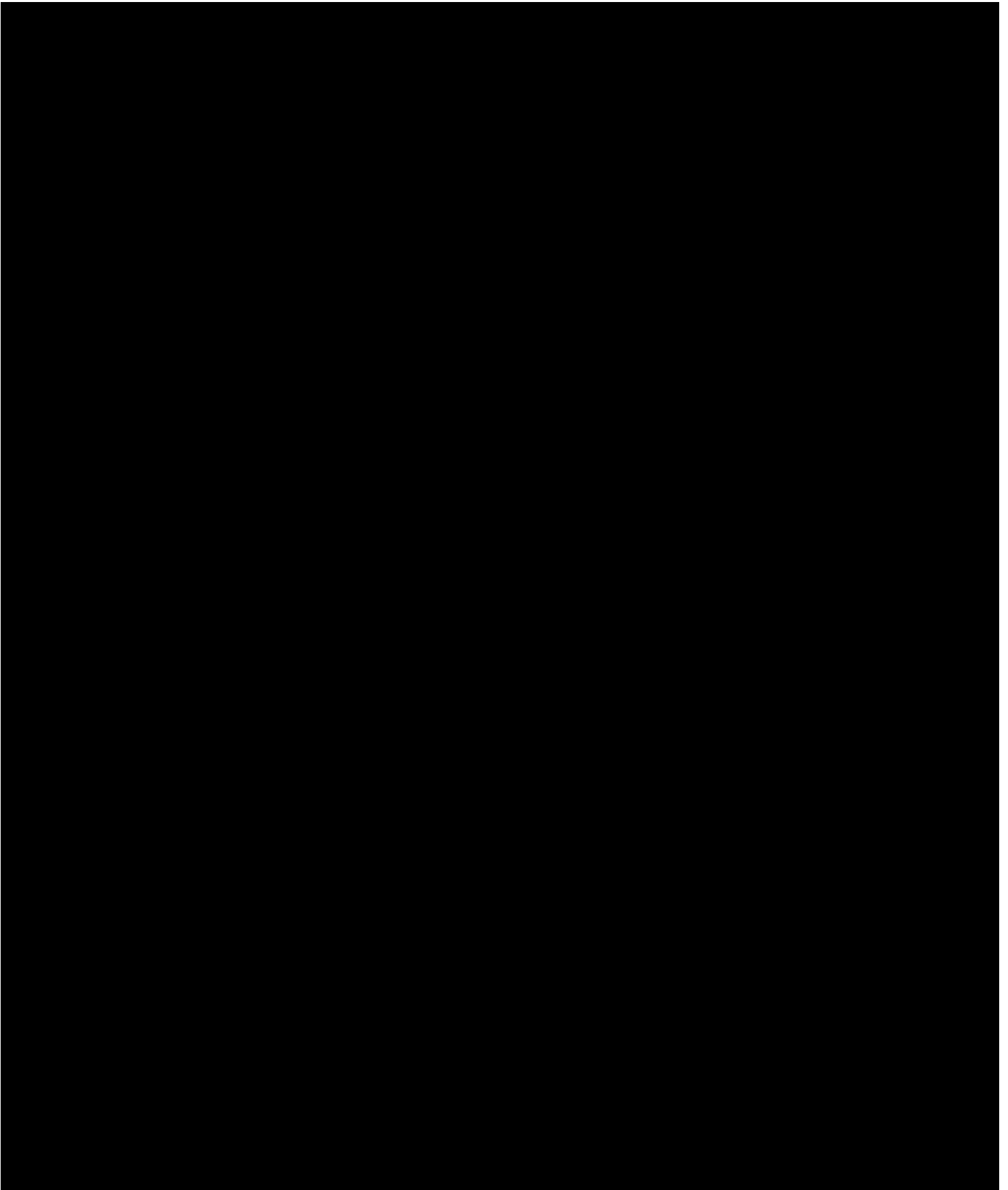
sales@initse.com | www.initse.com **Karlsruhe** & Hamburg/
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& Toronto/CDN | Neuhausen/CH | Nottingham/GB |
Singapore/SGP | Tampere/FIN

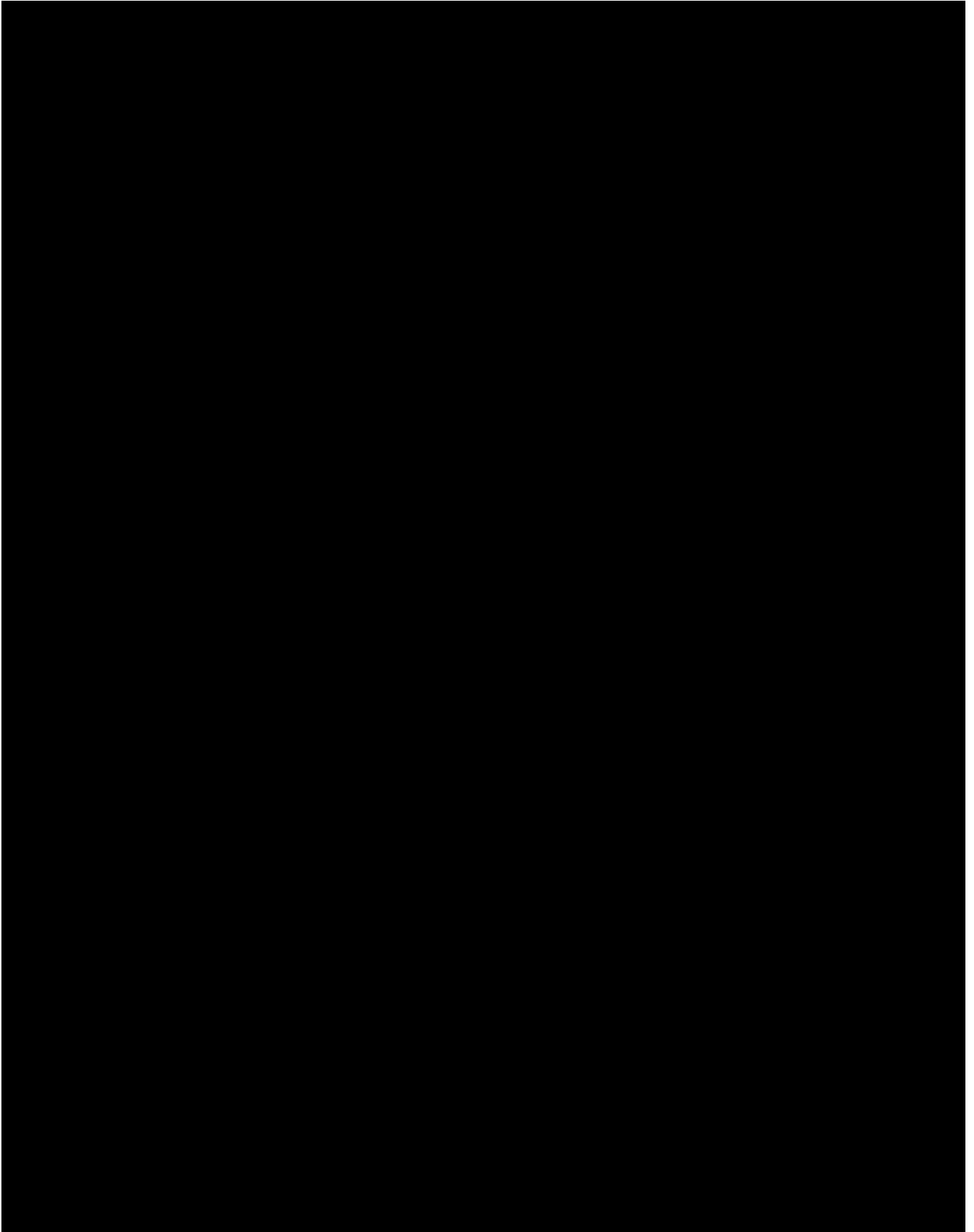
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The Future of Mobility

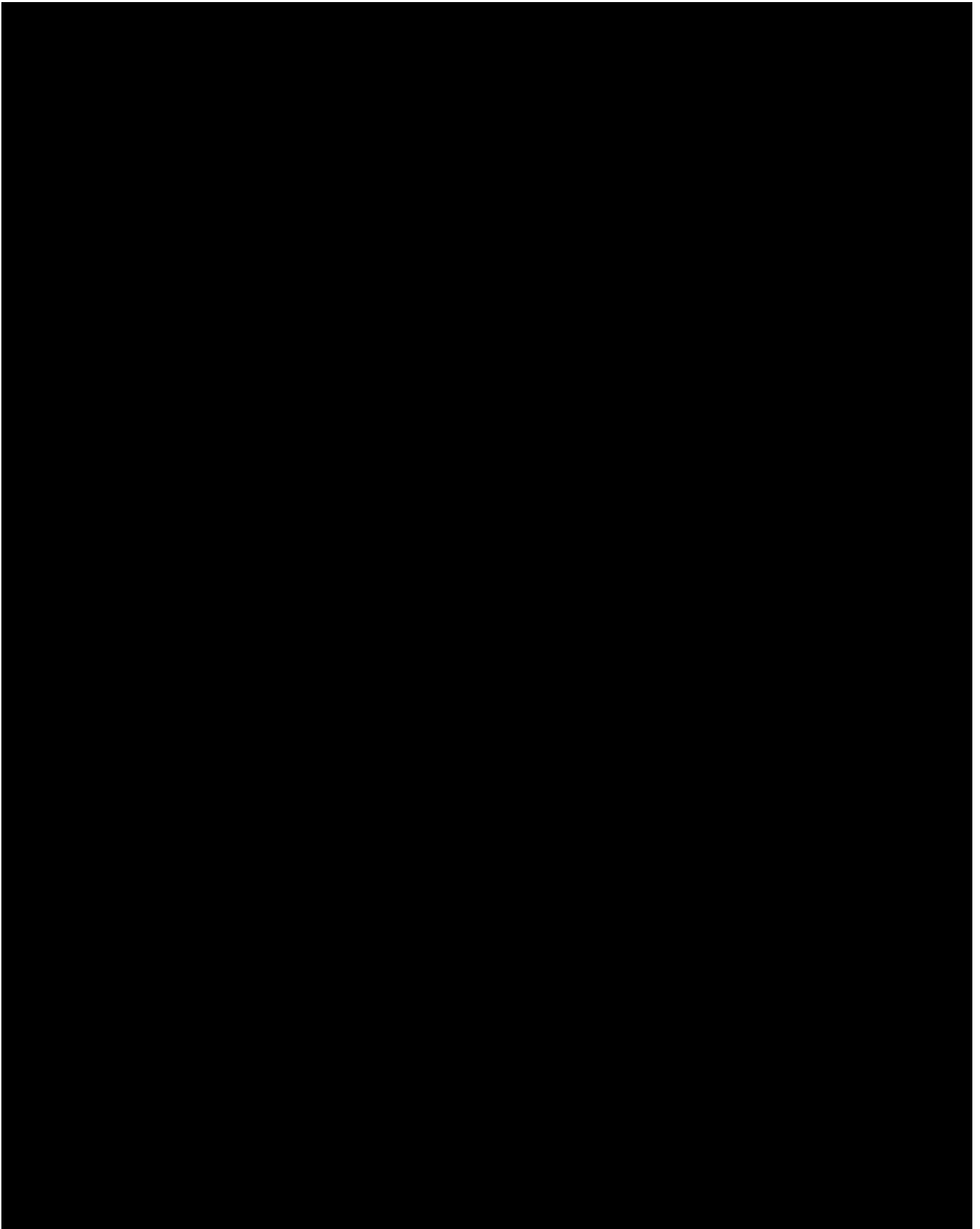
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1.4.1.9.3 Wayside Equipment









1.4.1.9.4 Office Equipment

1.4.1.10 Electrical

1.4.1.11 Power & Voltage Capabilities

INIT's equipment incorporates robust, reliable power and voltage capabilities suitable for the environment it's operating in. The PROXmobil3 onboard validator and the TOUCHit3 DDU draw power from the vehicle DC power source. The VMs obtain power from the station 115 or 240 Vac line voltage, and the platform validators can obtain power from the station line voltage or Power over Ethernet (PoE). All power conditioning is done within the equipment enclosures, except for the platform validator (whose power conditioning is done within the installation pole).

The onboard equipment, as indicated by the chart below, can operate over a wide range of input voltage.

Onboard Equipment	Minimum Input Voltage	Maximum Input Voltage
PROXmobil3 onboard validator	9 Vdc	36 Vdc
TOUCHit3 Driver Display Unit	8 Vdc	36 Vdc

The PROXmobil3 uses a varistor in the power supply rail to absorb transient surges which provides protection against damage to internal components. The PROXmobil3 system controller monitors the voltage level, and will shut down the device if the voltage level is too high. Low-voltage conditions are handled by the power circuitry itself by performing a power-on reset. The PROXmobil3 uses filters and switching regulators to withstand noise and power fluctuations. The printed circuit board is an 8-layer board with two complete ground planes, which vastly improves immunity to electronic interference, which may come from other onboard equipment. The validator protects against transaction data damage, loss or modification during voltage fluctuations or other power related events through the use of high-grade flash memory by storing several copies of the sales data to different flash areas in the validator.

The VENDstation and VENDmobile use the station line voltage, and can accept an input voltage range of 90 Vac to 305 Vac (as indicated in the power supply specification in Appendix 3).

The VMs incorporate a UPS within its enclosures which provides 30 minutes of back-up power to allow for graceful shutdowns in the case of power loss. The VMs power up automatically upon resumption of AC power. The platform validators can utilize either station line voltage or Power over Ethernet (PoE), and will accommodate 10% fluctuations in the line voltage. All field equipment will retain all information stored on non-volatile memory regardless of any voltage or power issues.

1.4.1.11.1 Electrical Noise Capabilities

The proposed equipment utilizes effective shielding (for instance, as indicated above, the use of two (2) of the eight (8) printed circuit board layers for ground planning), to restrict the level of emitted Electromagnetic Interference (EMI) and Radio Frequency Interference (RFI), and to protect against EMI and RFI emitted by other devices.

All equipment complies to FCC Part 15 – specifically, EN61000-4-2 for electrostatic discharge, EN61000-4-3 for high frequency electric fields, and EN61000-4-6 for current injection on power supply lines and signal lines. INIT will provide results of interaction analysis and testing of each system component with regard to frequency distribution, amplitude, and harmonic content for review and approval.

1.4.1.11.2 Grounding

INIT shall, with respect to grounding, conform to the National Electric Code (NEC) and UL, SAE, and local codes where applicable.

1.4.1.12 Licensing & Ownership

INIT grants to the ORCA agencies the right to internal use and distribute to third-parties all open architecture API's, libraries, documents and associated Intellectual Property (IP) including data exchange formats under a perpetual license at no additional cost.

1.4.1.13 Accessibility & ADA Compliance

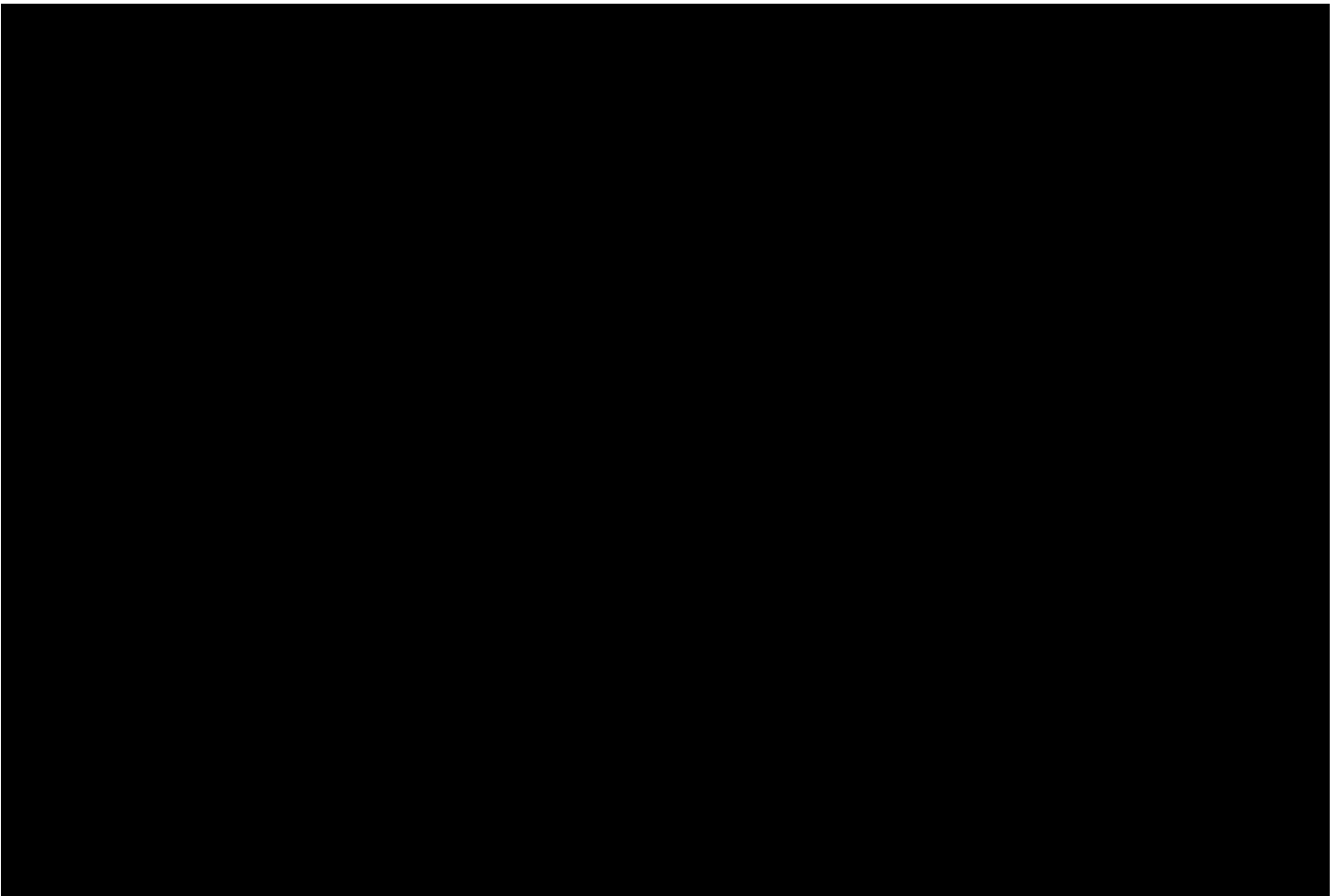
The proposed System will be compliant with current accessibility standards, laws, and regulations and ensures that the system meets or exceeds the Americans with Disabilities Act (ADA) and accessibility requirements of federal, Washington State and Puget Sound regional governments. INIT is working with external ADA consultants to ensure ADA compliance.

1.4.1.14 Code & Regulation Compliance

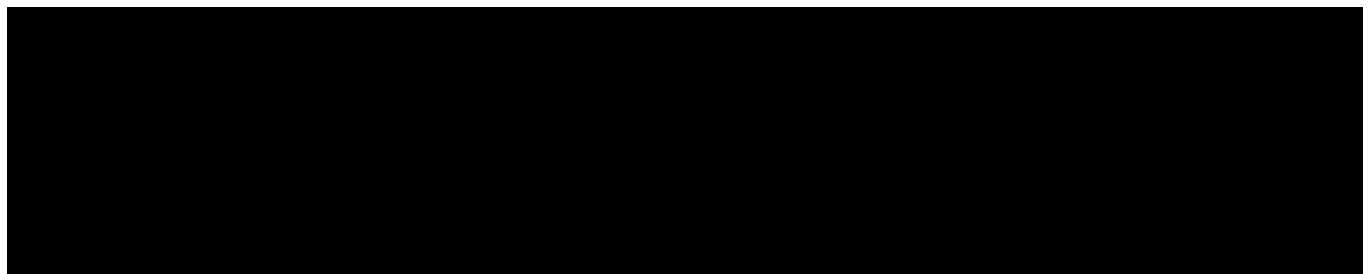
INIT concurs with the requirement that the proposed system will be compliant with relevant standards, laws, and regulations to ensure that the System

- Presents no safety hazards for customers and agency employees
- Will withstand the rigors of the environments in which the equipment will be installed, and the public use to which it will be subjected
- Provides for the secure storage and transmittal of data
- Is designed using state-of-the-art methods to maximize quality
- Satisfies federal, state, and other requirements for ergonomics and usability

1.4.1.15 Information Security



1.4.1.15.1 Information Security Management System – Asset Management



1.4.1.15.2 Access Control

1.4.1.15.2.1 User Authentication

All users of the system are required to authenticate to a centralized directory within the back office. Windows Active Directory centrally manages user login identity, password policy, and roles for access to the INIT provided systems and applications. The role based access control available within the integrated Active Directory and INIT solution can provide individual or group access and ensure which level of access those users are granted. While Active Directory between the next generation ORCA system and the existing ORCA agencies could be federated and trusted, the large number of users combined with the internal and external applications will benefit from a universal directory. In alignment with ISO27001 guidance, INIT recommends deploying this strategy to create user authentication consistency in the distributed network environment required by the next generation ORCA system. A federated identity solution provider such as Azure AD Services can provide the recommended universal directory, SaaS application integration, multi-factor authentication and secure access.

1.4.1.15.2.2 Password Policy and Management

Password policy is set and enforced in the settings of the primary user directory. Accounts will be forced to create and rotate passwords depending on a mutually agreed policy definition. INIT recommends adopting the most recently updated NIST password guidelines which emphasize longer passwords with longer rotation schedules. This provides a higher level of security through increasing the amount of entropy within an individual password as well as decreasing user shortcuts that inevitably occur when forced to create complex passwords at a high frequency. With the addition of Azure AD, password policies and changes should be able to be enforced throughout the entire distributed application infrastructure adding additional security and easing the burden on end-users.

1.4.1.15.2.3 Privileged Remote Access with Two Factor Authentication

INIT's proposed remote access solution ensures secure, traceable, and compliant remote access solution. Bomgar Remote Support provides remote access capabilities for Windows, Mac, Linux, iOS, and Android solutions within a single solution. Deployed in either VPN or non-VPN environments, Bomgar only requires outbound access to a single, INIT-controlled public IP address to create a secure, encrypted session. In secured, locked down environments without internet access, a Bomgar Jumpoint Proxy can be leveraged to provide remote access into those secure enclaves. Developer and support access to Bomgar is integrated with an internal Active Directory requiring support providers to provide their internal credentials as well as a second factor authentication challenge. Once authenticated, these power users have access to only the customers' infrastructure they've been granted access to. Further, an integrated password management tool named Bomgar Vault allows the power user to inject the required credentials without having to type them or even know what they are. If desired, a video recording and audit trail of all activity performed during a remote support session can be made available. This level of authentication, authorization, control, auditing and management can be extended to trusted third parties as well. This solution aligns with ISO27001 guidance regarding privileged access rights, remote access, log-on procedures, password management, cryptography, compliance and operations.

1.4.1.15.2.4 Firewalls, Routers, Switches and Network Security

Edge devices such as firewalls and routers, along with internal access layer devices such as layer 2 and layer 3 switches are critical controls in regards to access control and management. Perimeter devices ensure that only authorized network traffic can access applications, data and services running behind the perimeter. Firewalls and other network devices deployed within the next generation ORCA back end will be deployed in high availability pairs to ensure redundancy. Cisco firewalls with Firepower technology will provide traditional firewall rulesets but additional capabilities for application visibility, intrusion prevention, and malware protection. As a hosted infrastructure solution, changes to the firewalls by the hosting provider will follow change management procedures and regular backups of firewall configurations prior to the change will provide an archive of previous rule sets. Multiple versions of firewall configurations will be kept via TFTP server to enable roll back of configuration if necessary. Internal routers and switches will receive similar high availability deployments and change processes and documentation to ensure a traceable, auditable log of both the change and reason for change.

1.4.1.15.2.5 Physical, Environmental and Equipment Security

The physical and environmental security of the back office is provided by the back office hosting provider. The proposed provider maintains a secure campus with multiple authentication steps and factors for physical access to the facility. Employees of the hosting provider undergo background checks and only authorized employees or validated 3rd party solutions providers



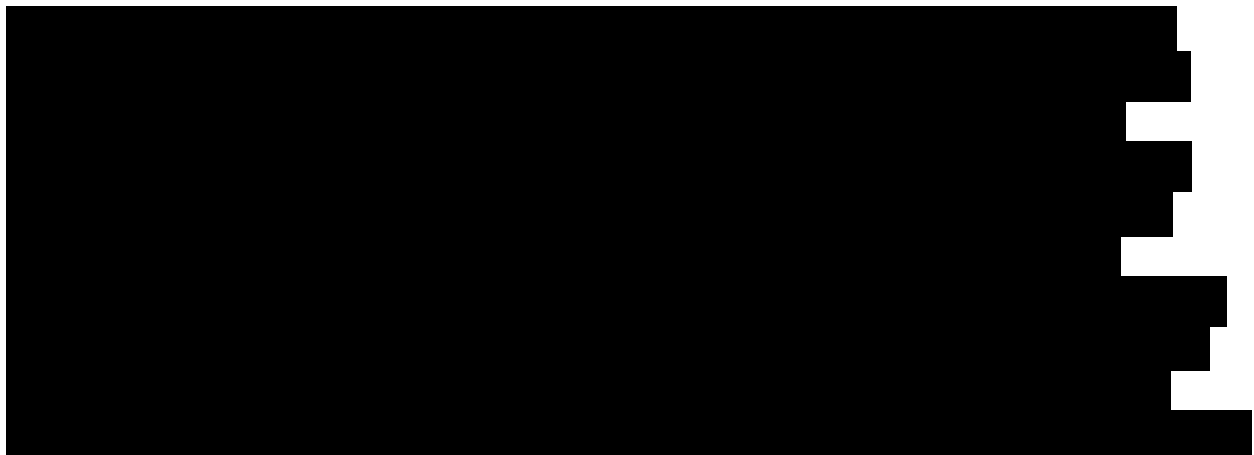
(such as OEM support staff) are provided access to the physical location of the back office. 3rd party providers are required to have attended access to the hosting location. The hosting facilities are protected environmentally with redundant power, cooling, electric and network connectivity redundancy.

The geographically distributed data center strategy ensures environmental isolation of the back-office system to protect from fire, flood or other natural disaster impacting one of the data centers. In the rare event of a regionally impacting system that destroys both hosting centers, a 3rd out-of-region data backup site has been planned. While the distance of the third site likely precludes the ability of the next generation ORCA system to effectively operate out of the third site, the geographically separate data storage facility allows for the protection of data and eventual disaster recovery once a primary site is available again.

The out-of-region backup datacenter is not intended to be used as an operational continuity datacenter due to the costs and complexity of data replication, extra hardware and software licenses that would be required, and the additional, and unavoidable, latency that would be added to the system. Because the system is designed to be able to partially operate in an offline environment, the additional latency would likely cause validation transactions to be processed in offline mode, therefore, INIT recommends that the cost and complexities outweigh the benefits of adding a third operational datacenter.

The hosting provider will provide evidence of its physical, environmental and equipment security capabilities on demand. Additionally, as the hosting provider is responsible for the maintenance and upkeep of the equipment, they will maintain service records on all equipment which will be made available upon inspection request. This includes equipment maintenance, support, upgrade and replacement made throughout the duration of the contract. With the extended duration of service and operation, the replacement of legacy equipment is included as part of the hosting provider's responsibilities.

1.4.1.15.3 Encryption



1.4.1.15.3.1 Database Encryption

INIT proposes to use the Oracle Advanced Security features of Oracle Enterprise Edition to provide transparent, state-of-the-art data encryption with optimized performance. Transparent Data encryption uses the Advanced Encryption Standard (AES), SHA1 hashing, and supports FIPS 140-2 Level 1 operation. While entire tablespace encryption is available, column based encryption for improved performance in large tables with specific sensitive data is also an available option in this version. As discussed in the PCI chapter, INIT will not store any credit card data in the database. Only a tokenized version of the credit card number will be stored so that the credit card can be re-used for future purposes without re-entering the account information. But the database may contain PII that will be encrypted using the Oracle Advanced Security features mentioned. INIT is planning to encrypt the individuals name, telephone number and address. The exact list of all fields to be encrypted will be agreed on during the system design phase.

1.4.1.15.3.2 Communication Security

There are three main communication channels that need to be protected: communication to trusted sales channels and 3rd parties using APIs, communication to and from the field devices and communication from end-customers using the website / mobile App.

1.4.1.15.3.2.1 API Communication

INIT secures all API communication using HTTPS with Basic Auth as the authentication mechanism. System external API clients use the API Gateway that provides authentication with certificates or OAuth. All users using the APIs will need to register a user account in the MOBILEvario back office system or the API management. The user configuration within MOBILEvario is so granular, that each and every API call can be allowed or restricted for a specific user. This allows configuring user accounts specific to the purpose needed. E.g. the retail network will only be able to access the Product Sales and Cash Load APIs, but not the API calls to retrieve detailed customer information.

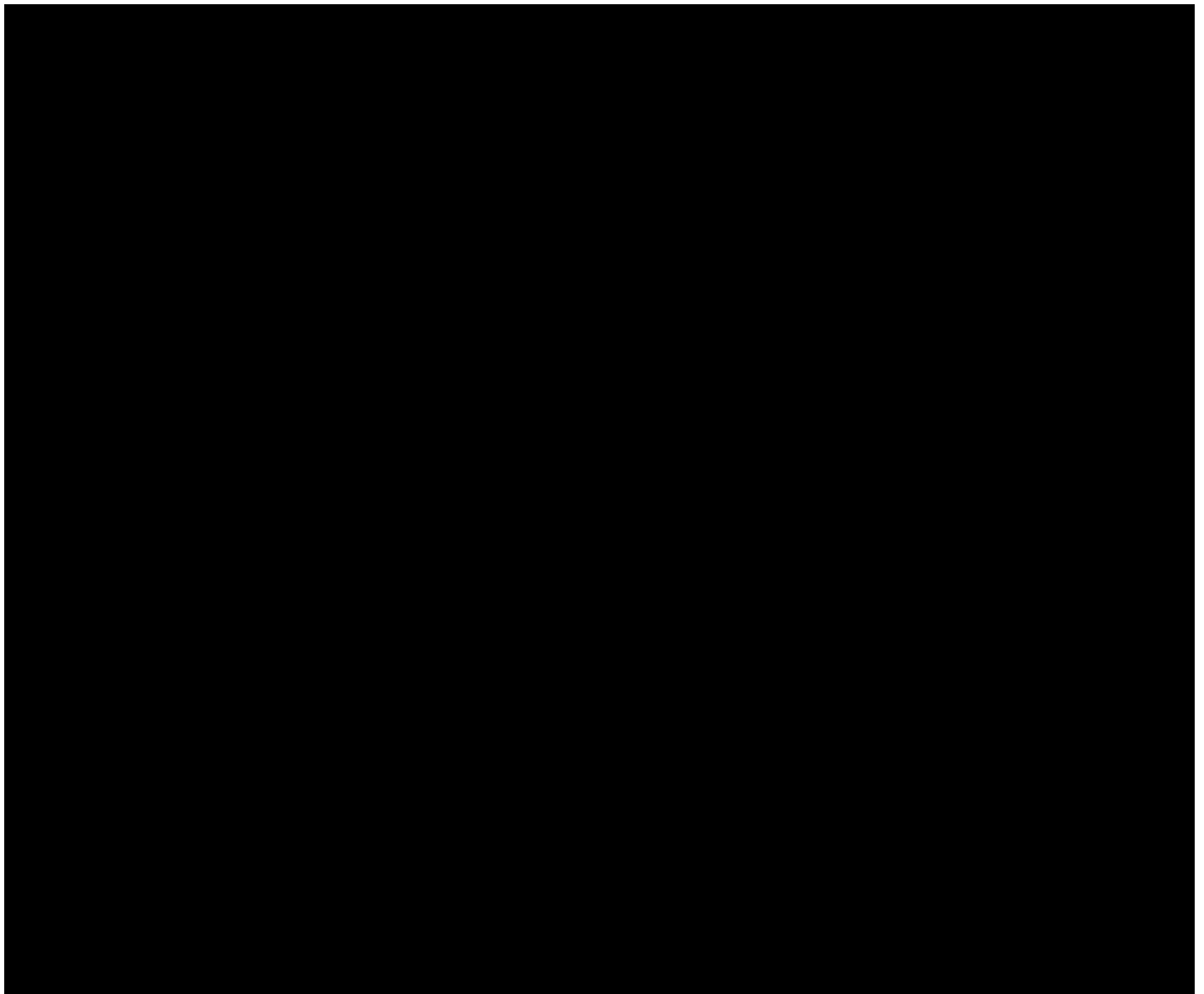
1.4.1.15.3.2.2 Field Device Communication

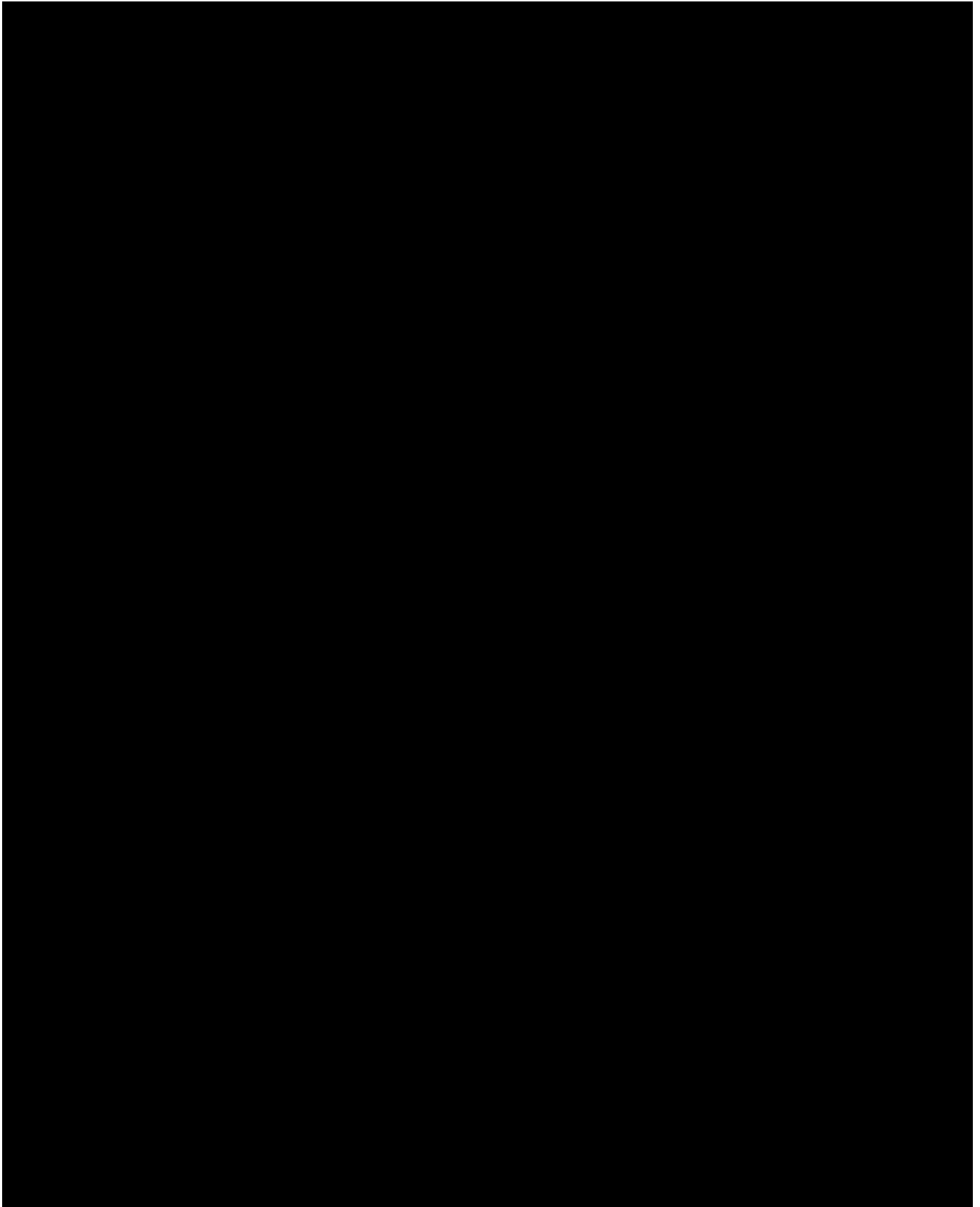
While bulk file transfer often occurs on internal, secured wireless networks and through agency-managed private networks to connect to the back office, secure file transfer using SFTP from vehicles to data management servers is used to further protect the communications between vehicles and the rest of the central system. Leveraging SFTP for this activity requires agreement and technical support of the agencies' individual vehicle networks and associated equipment.

1.4.1.15.3.2.3 Public Website

The publicly accessed web applications are secured using HTTPS over TLS version 1.2.

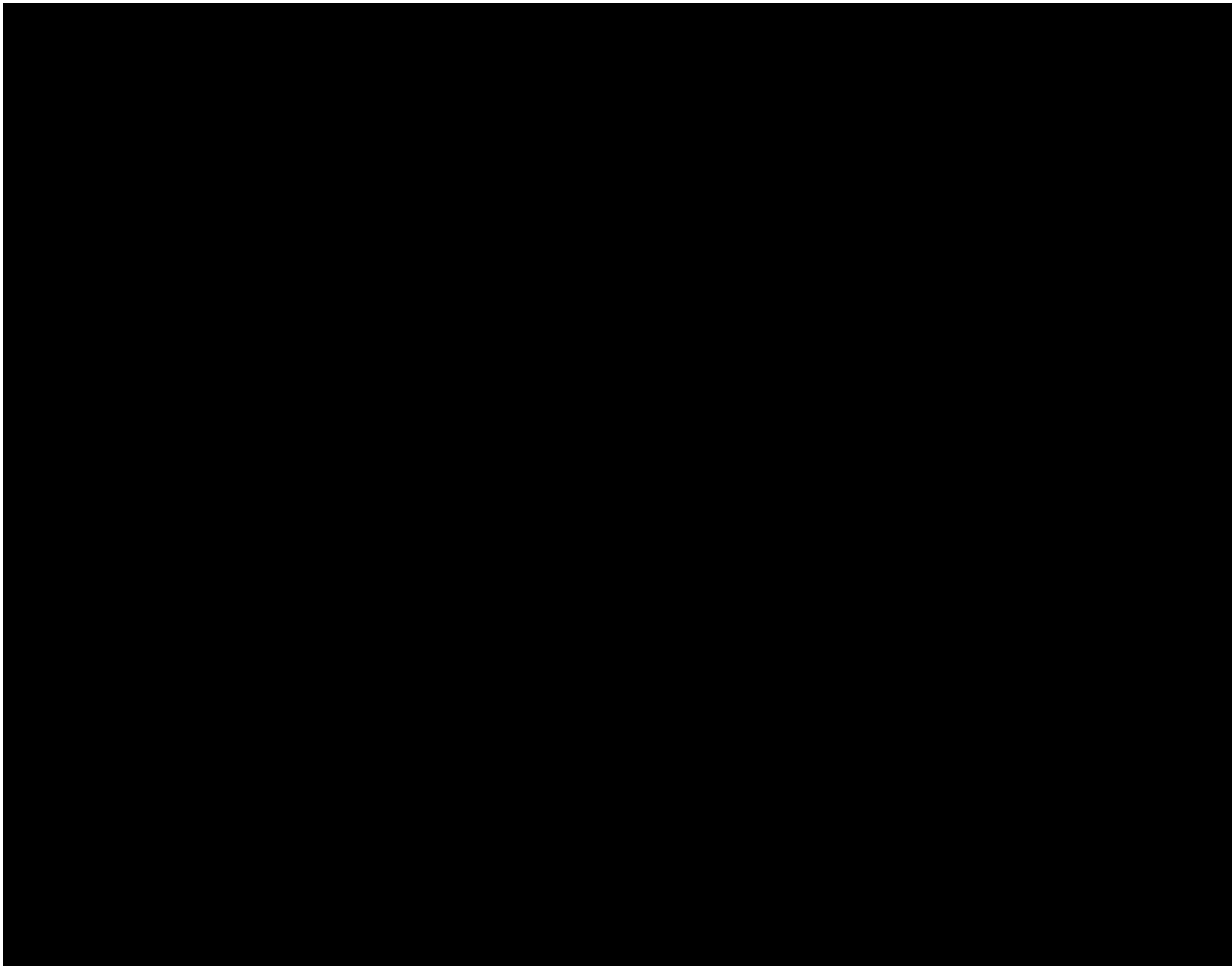
1.4.1.15.4 PCI & PII



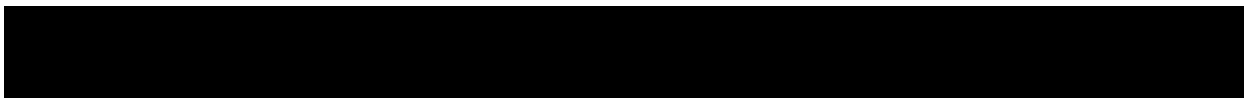




1.4.1.16 Fraud Prevention

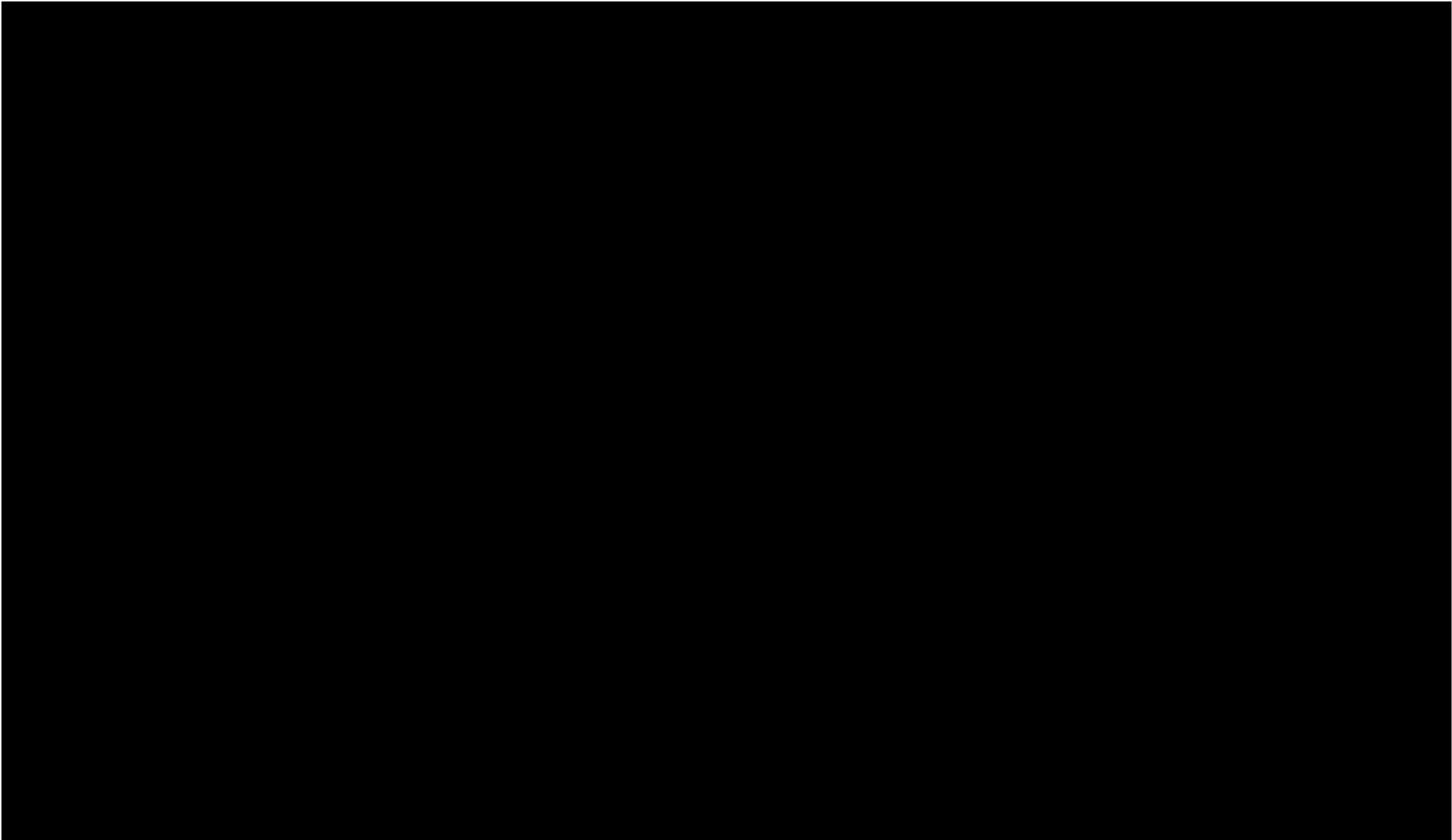


1.4.2 System Architecture



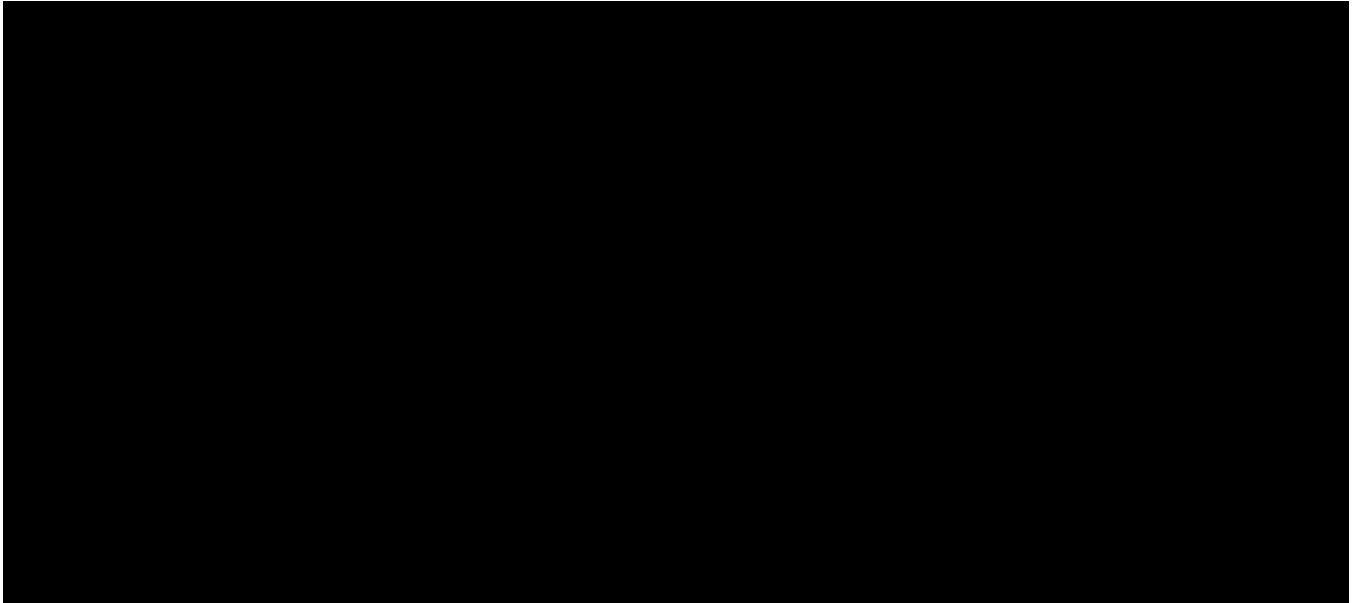


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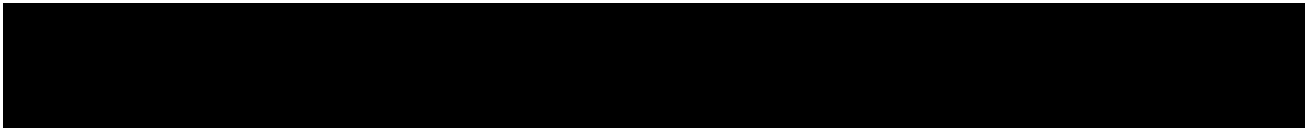


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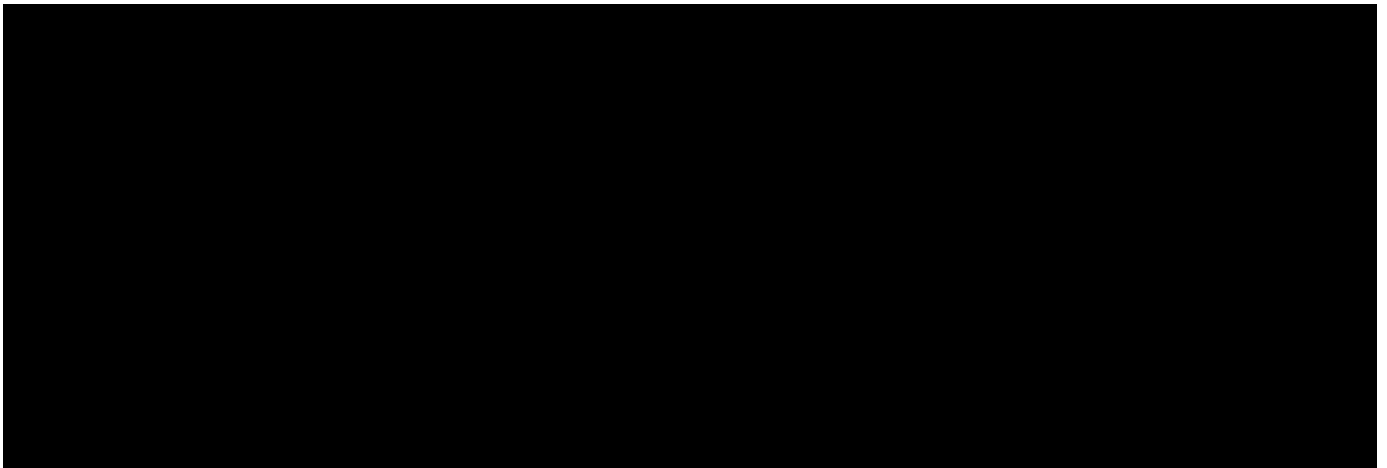
1.4.2.1 Account-Based System

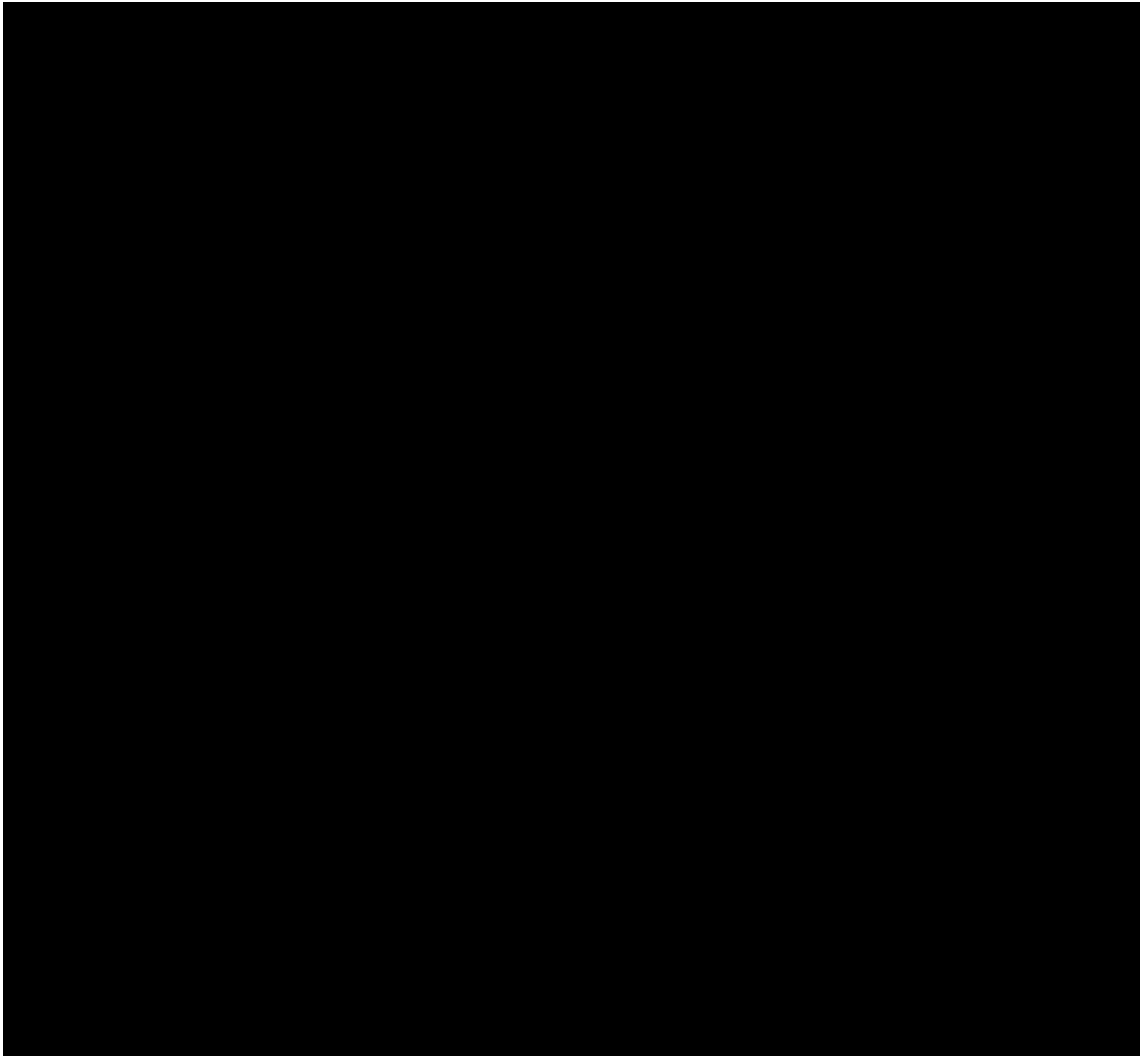


1.4.2.2 Real-Time Communications

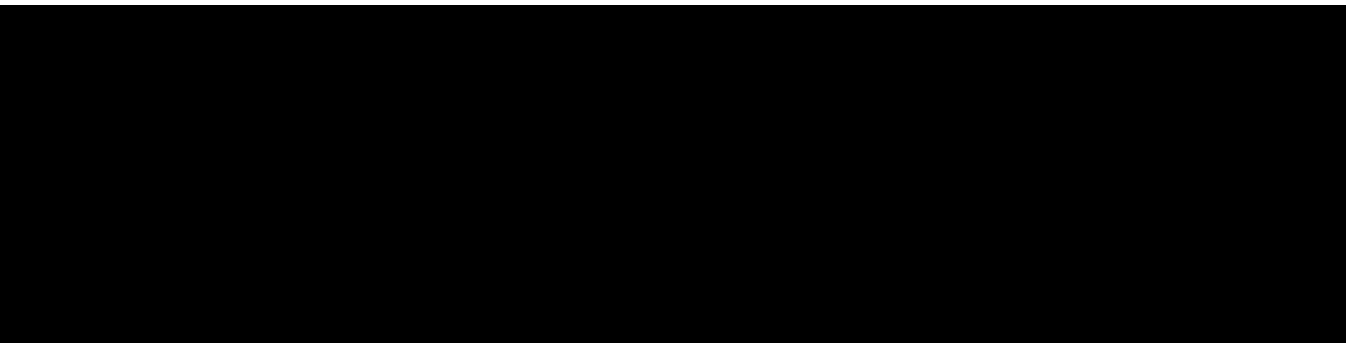


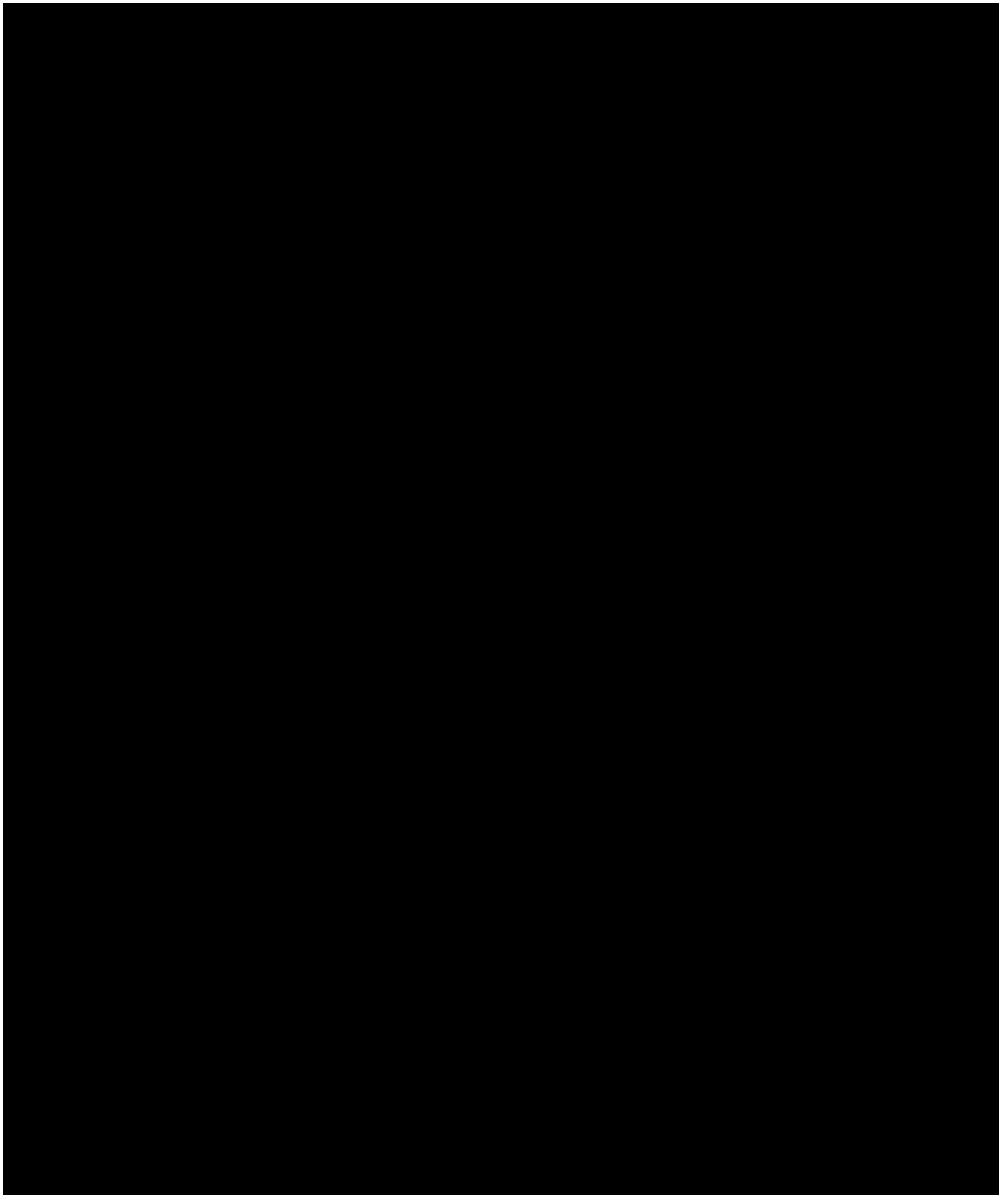
1.4.2.3 Offline Provisions

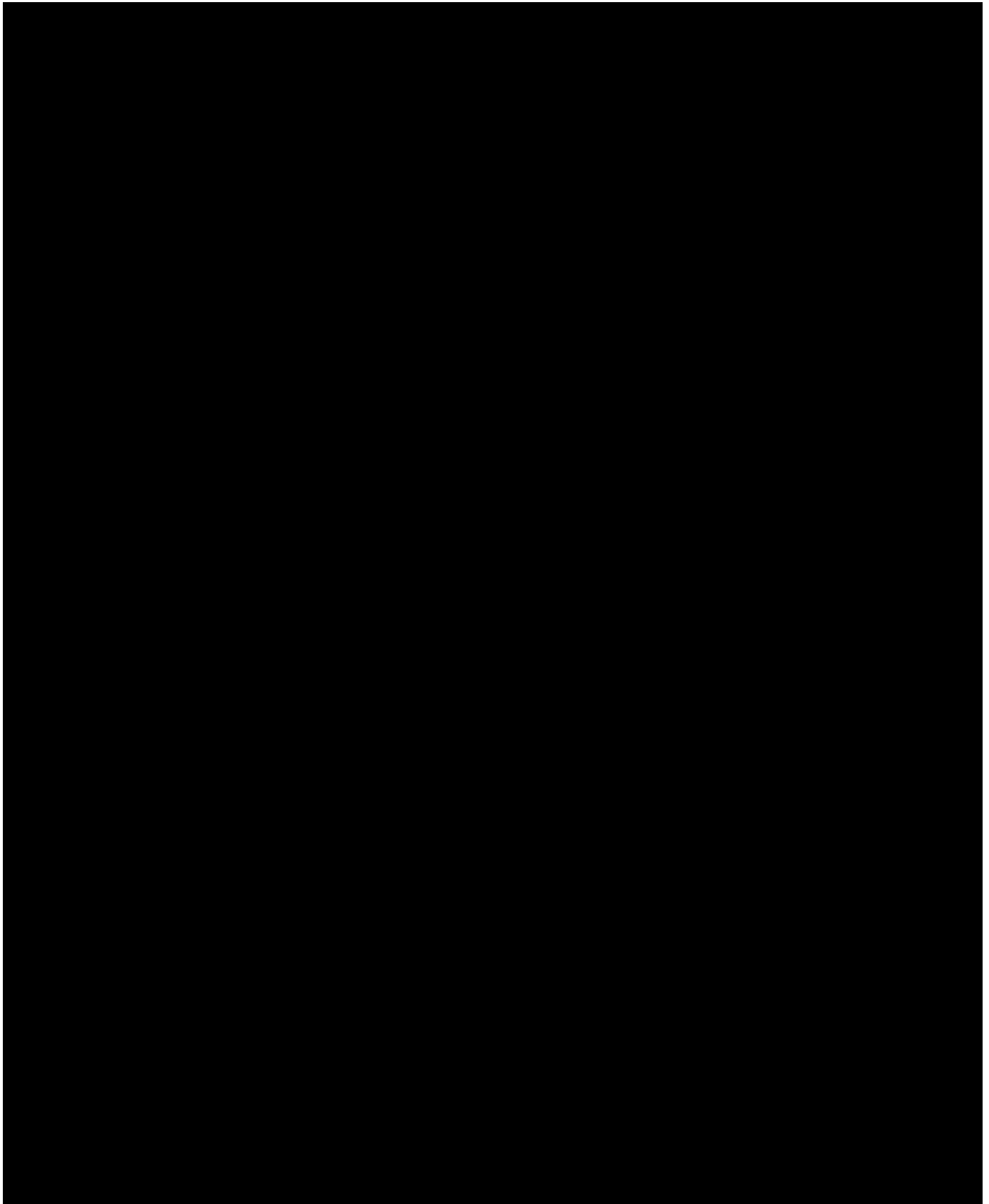


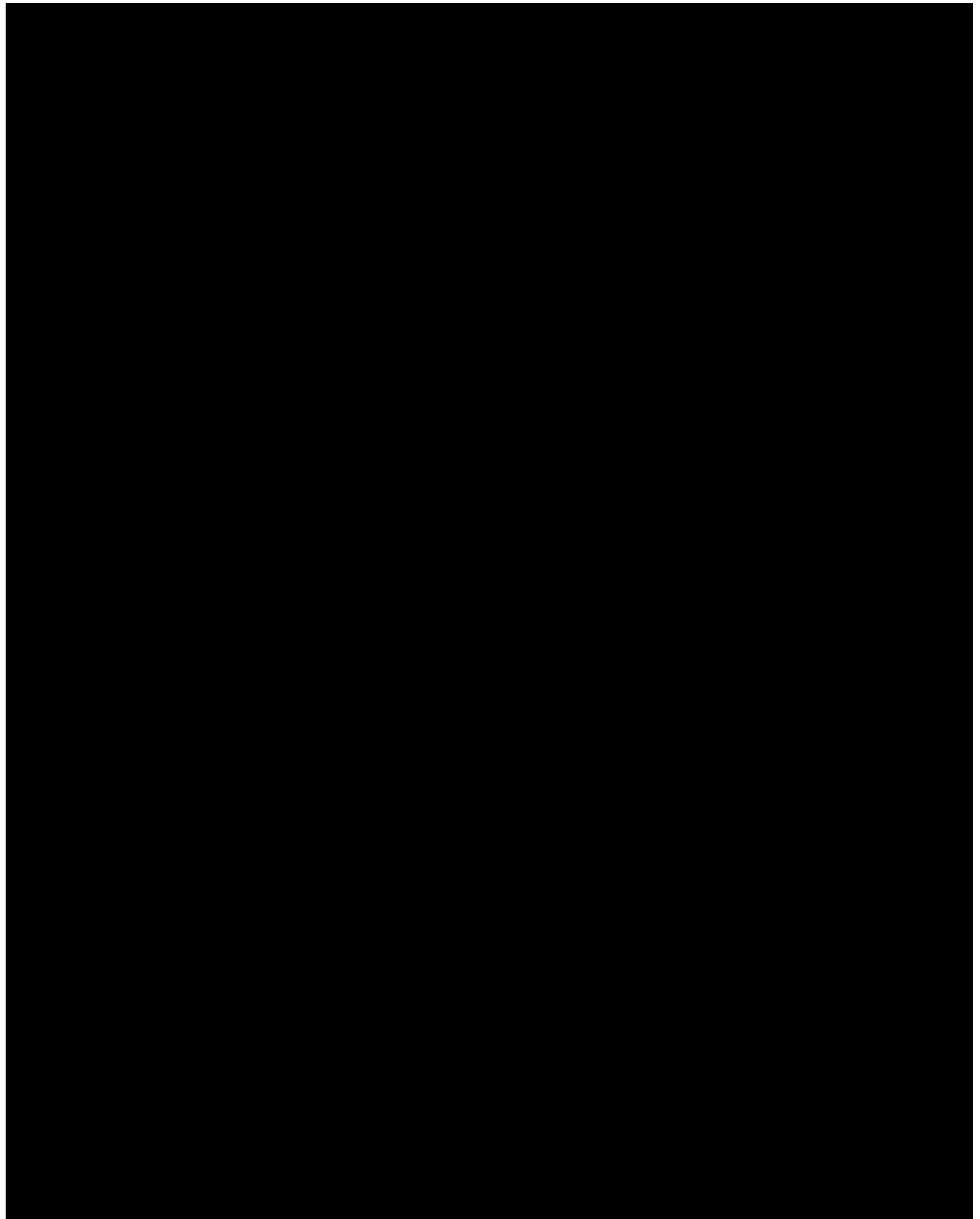


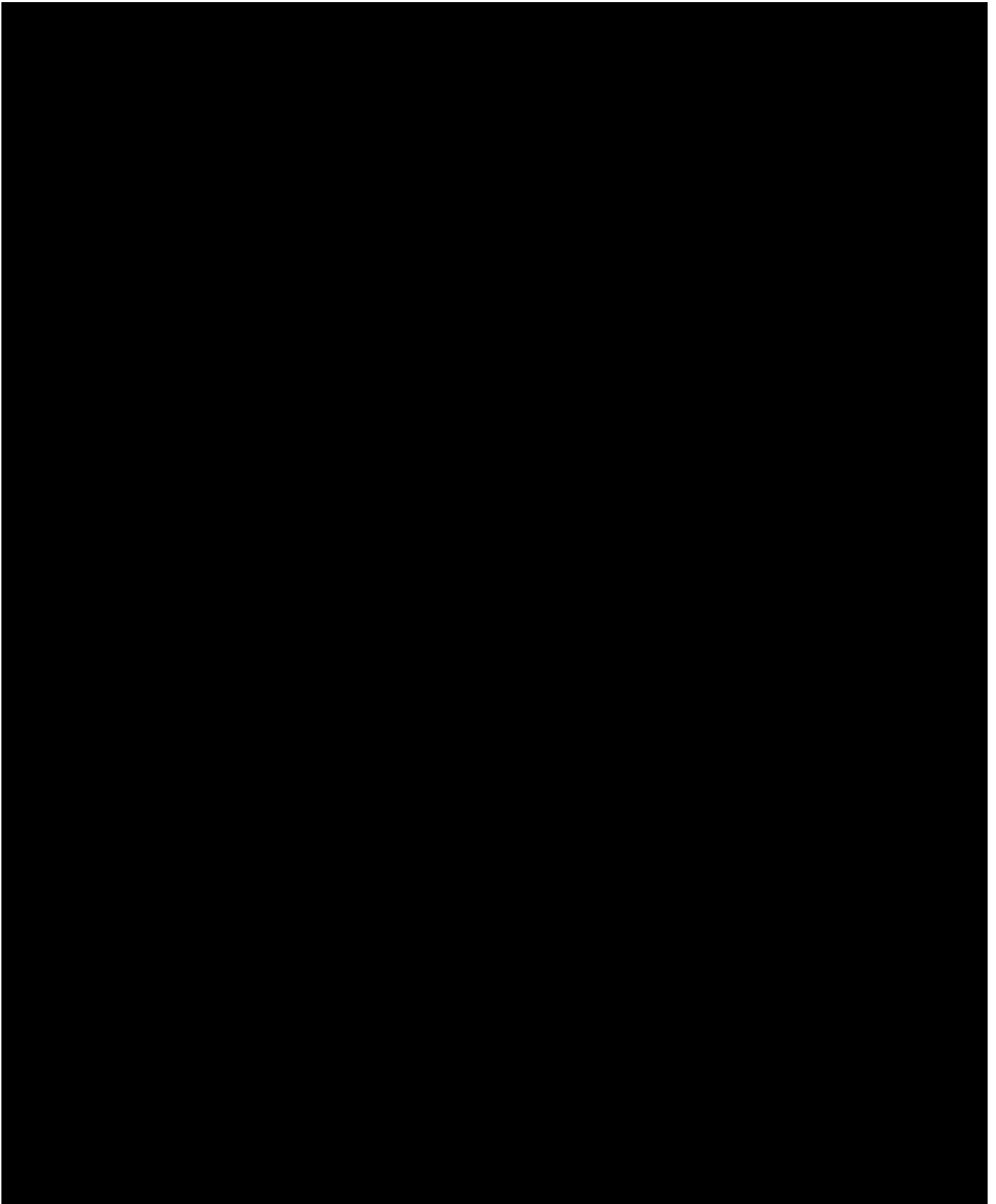
1.4.2.4 Application Programming Interfaces

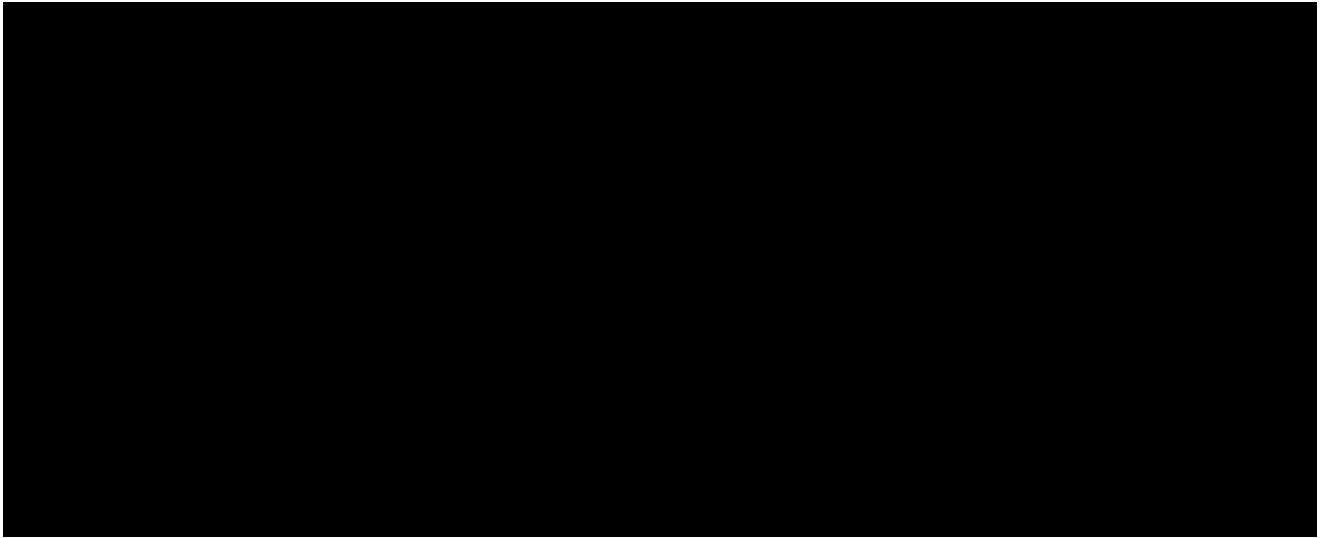




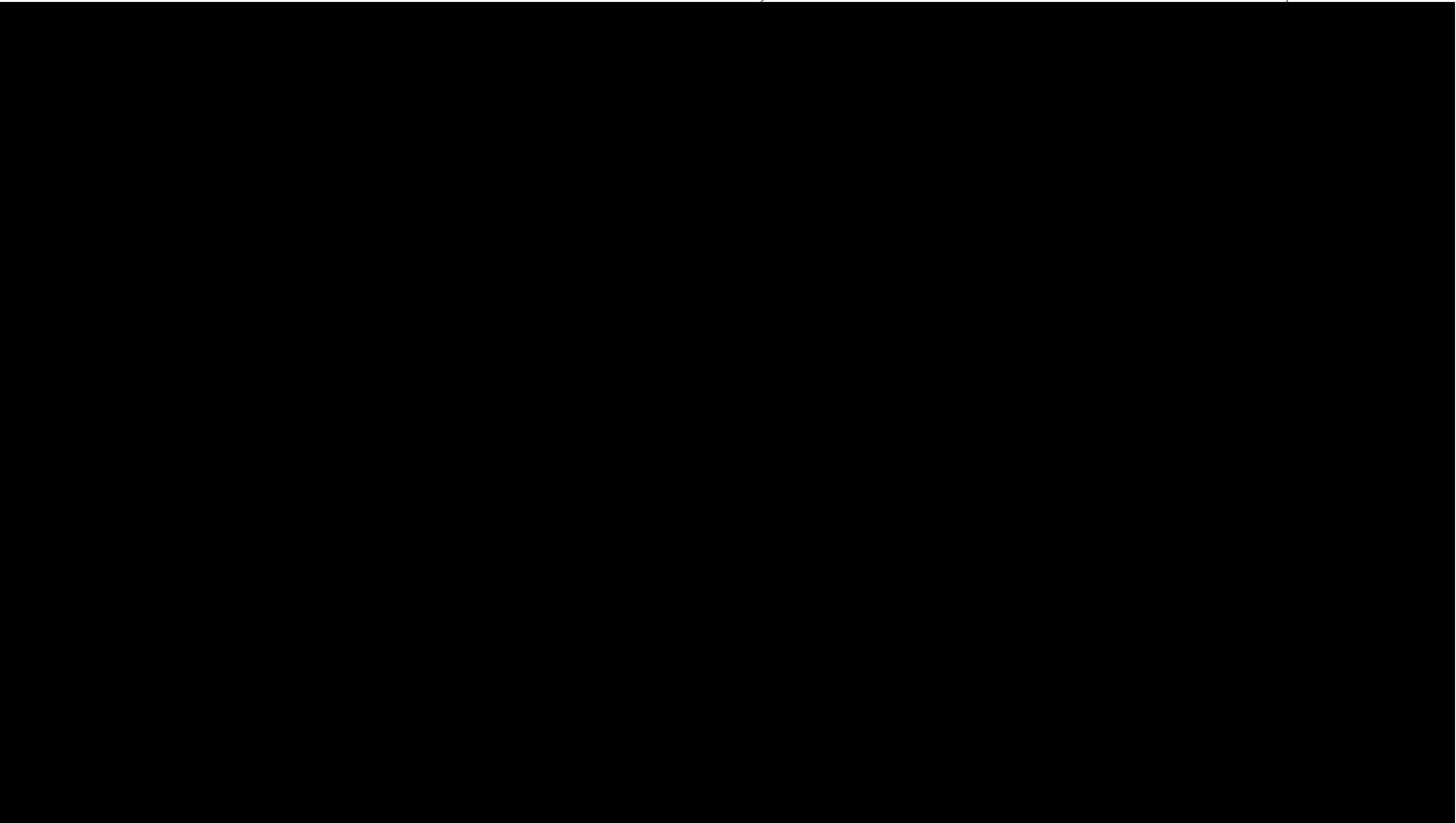






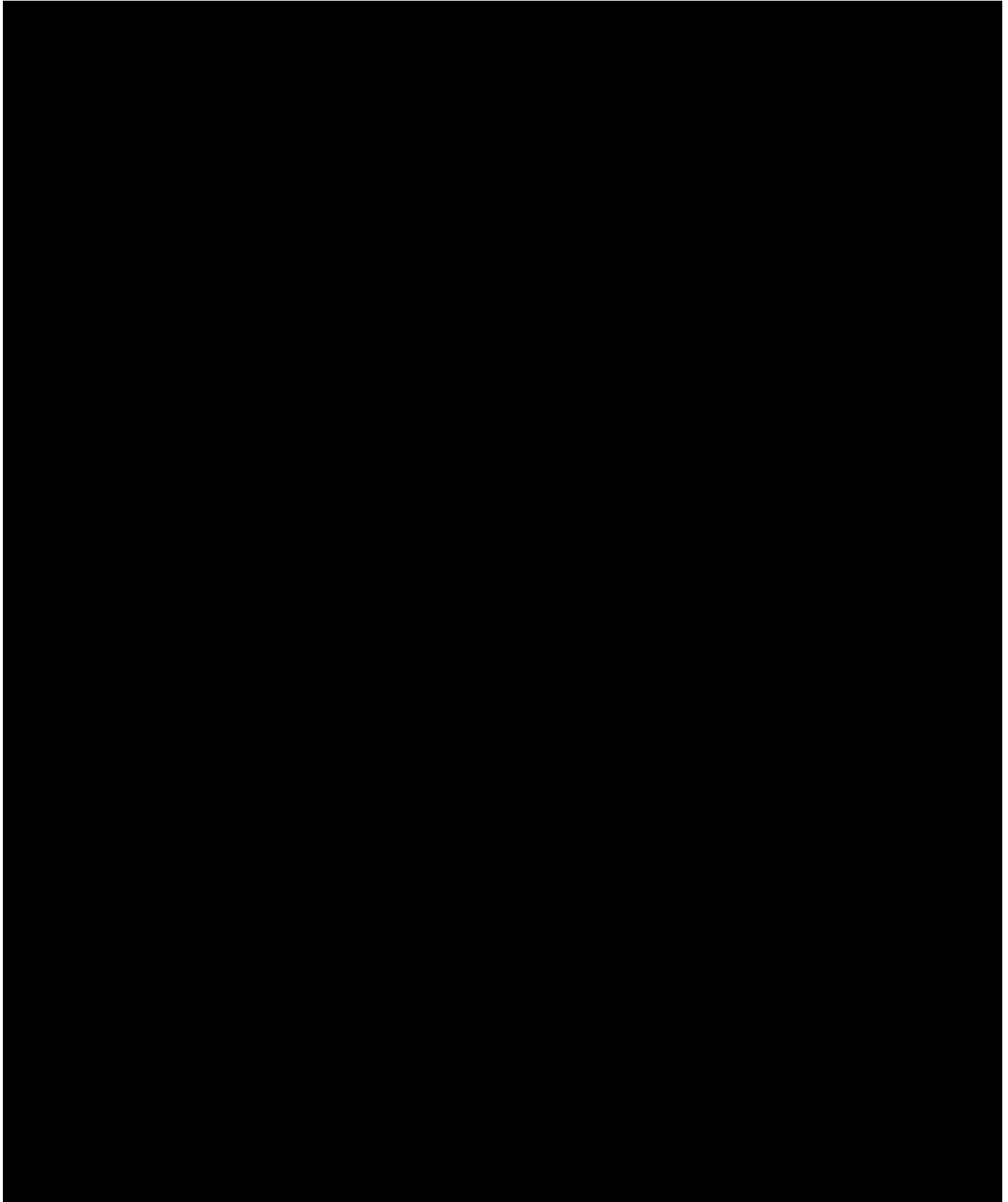


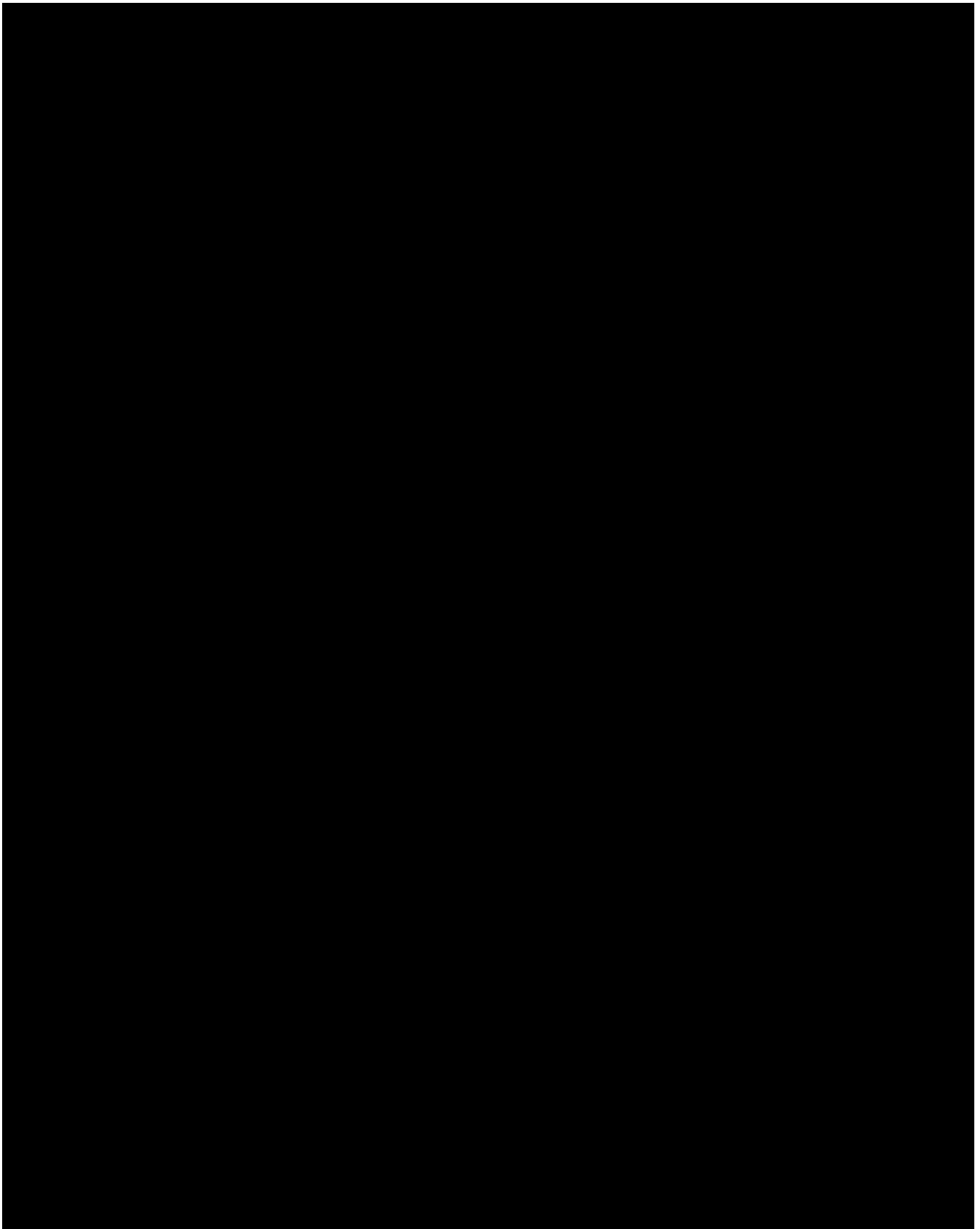
1.4.2.5 Network Architecture

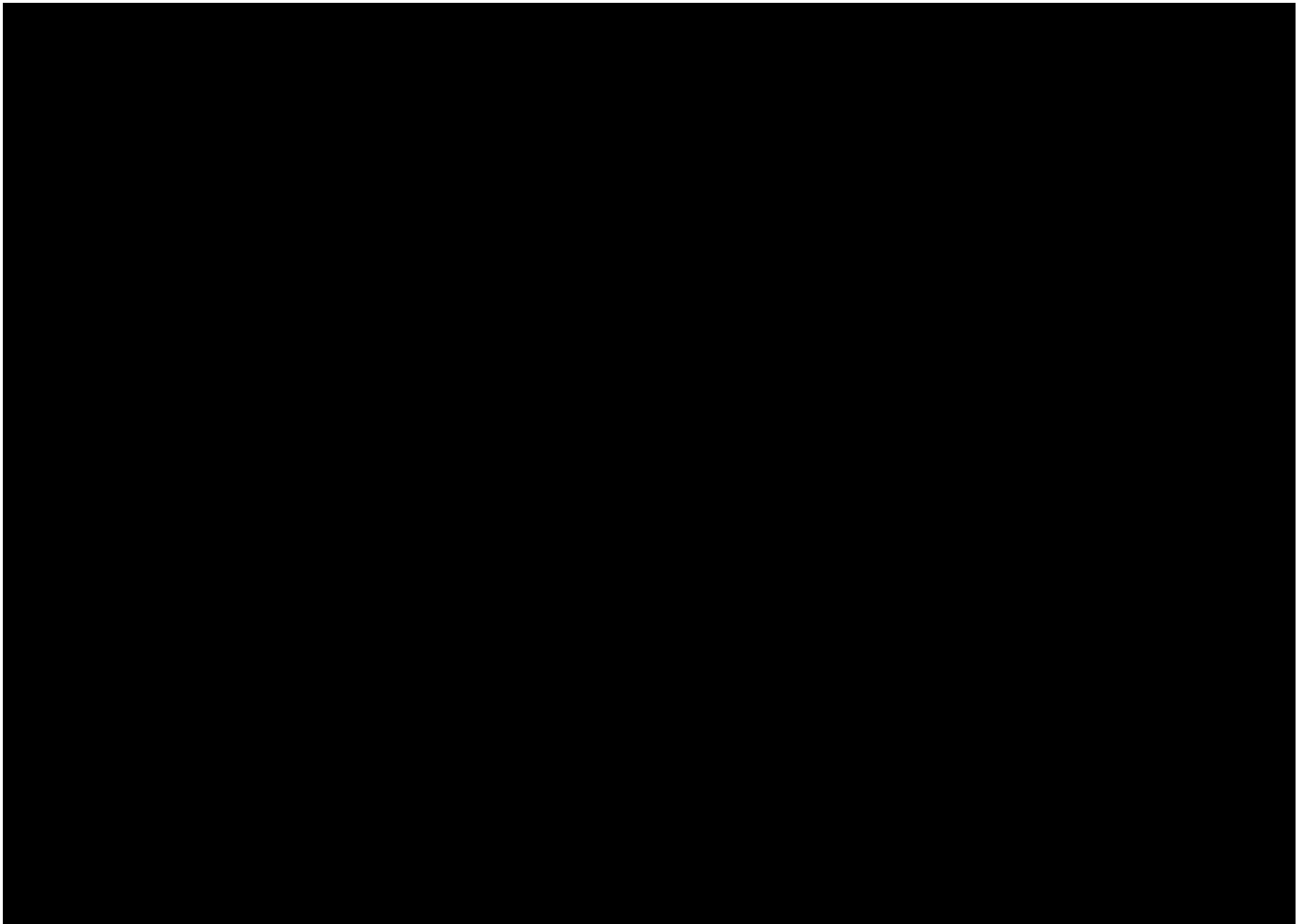


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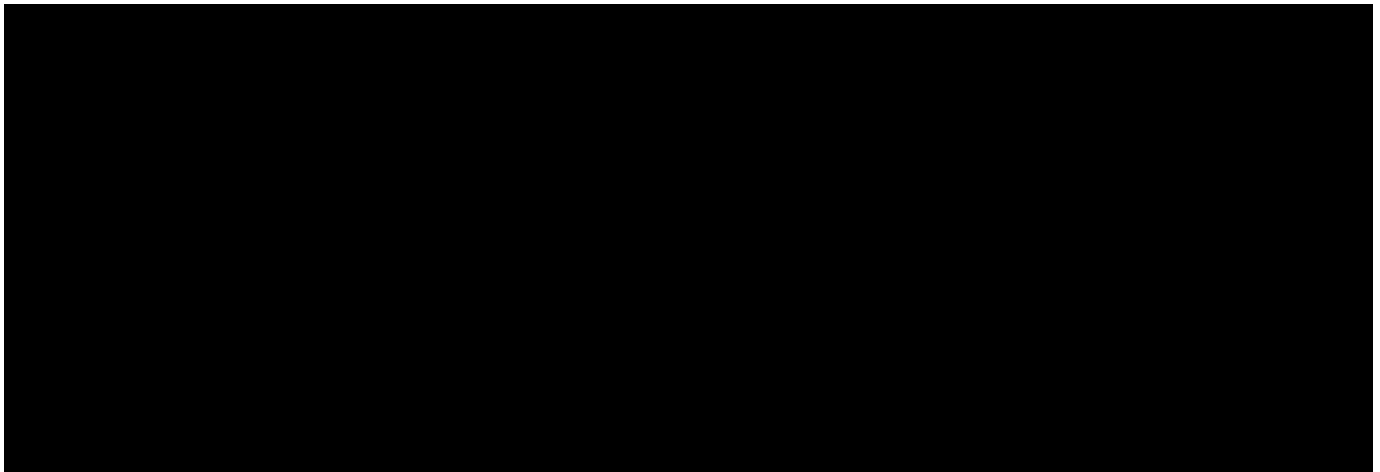
1.4.2.5.1 Description







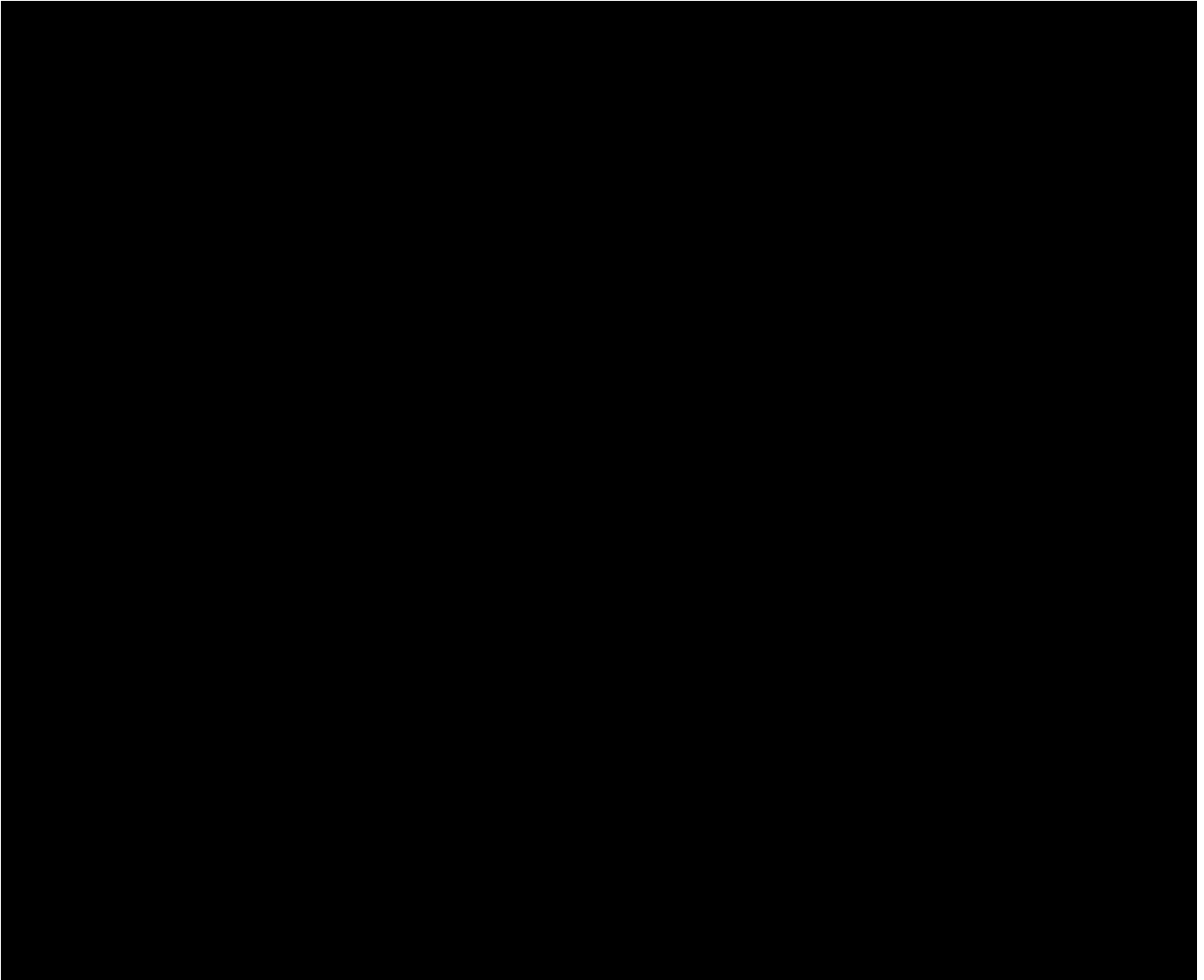
1.4.2.5.2 Onboard Infrastructure



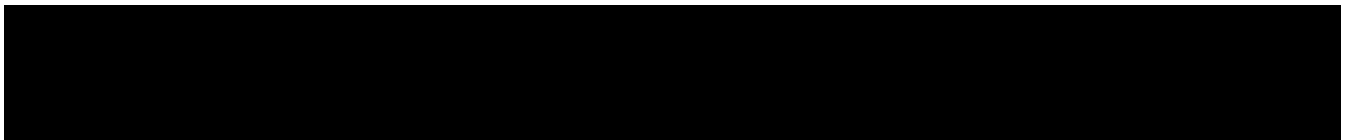
1.4.2.5.3 Wayside Infrastructure



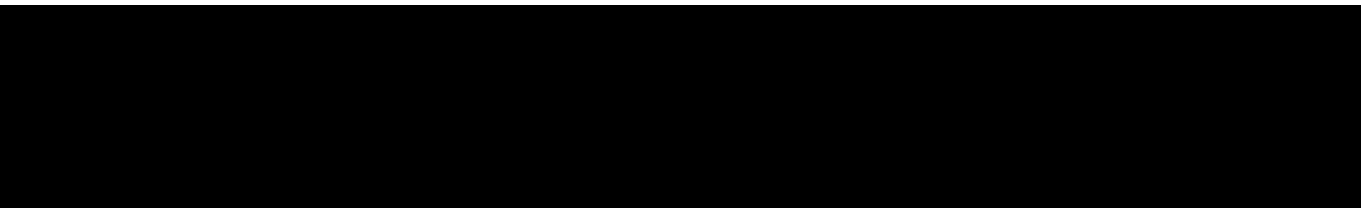
1.4.2.6 System Hosting



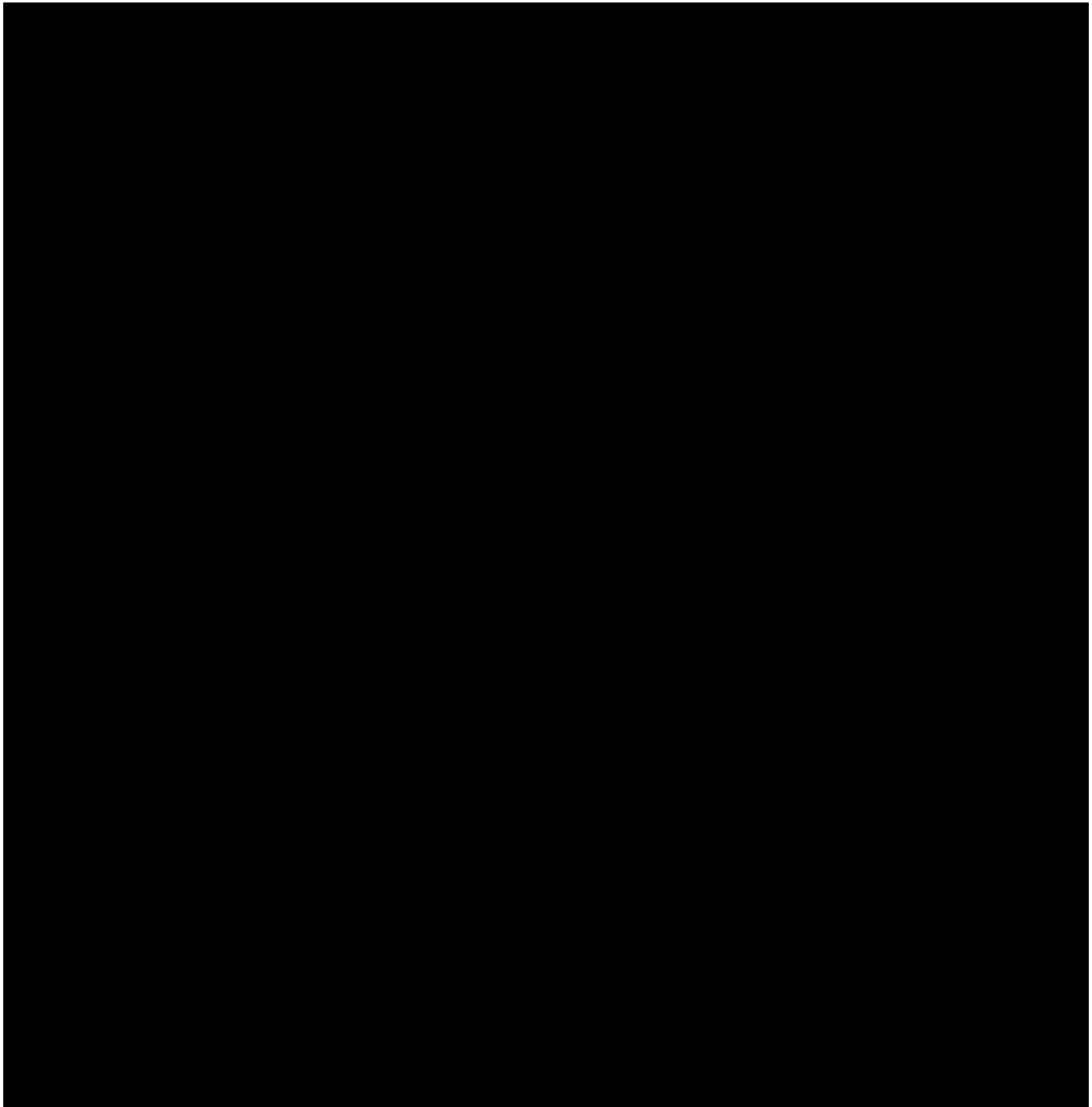
1.4.2.6.1 Customer References



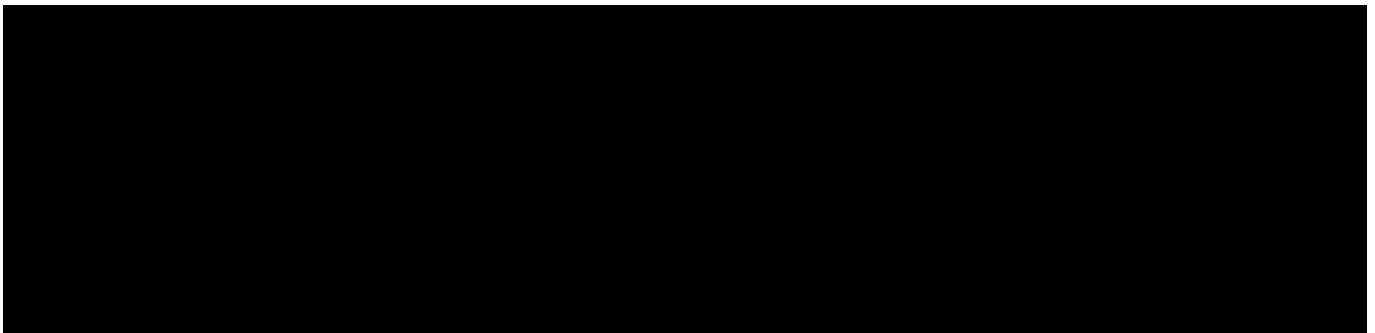
1.4.2.6.2 Security

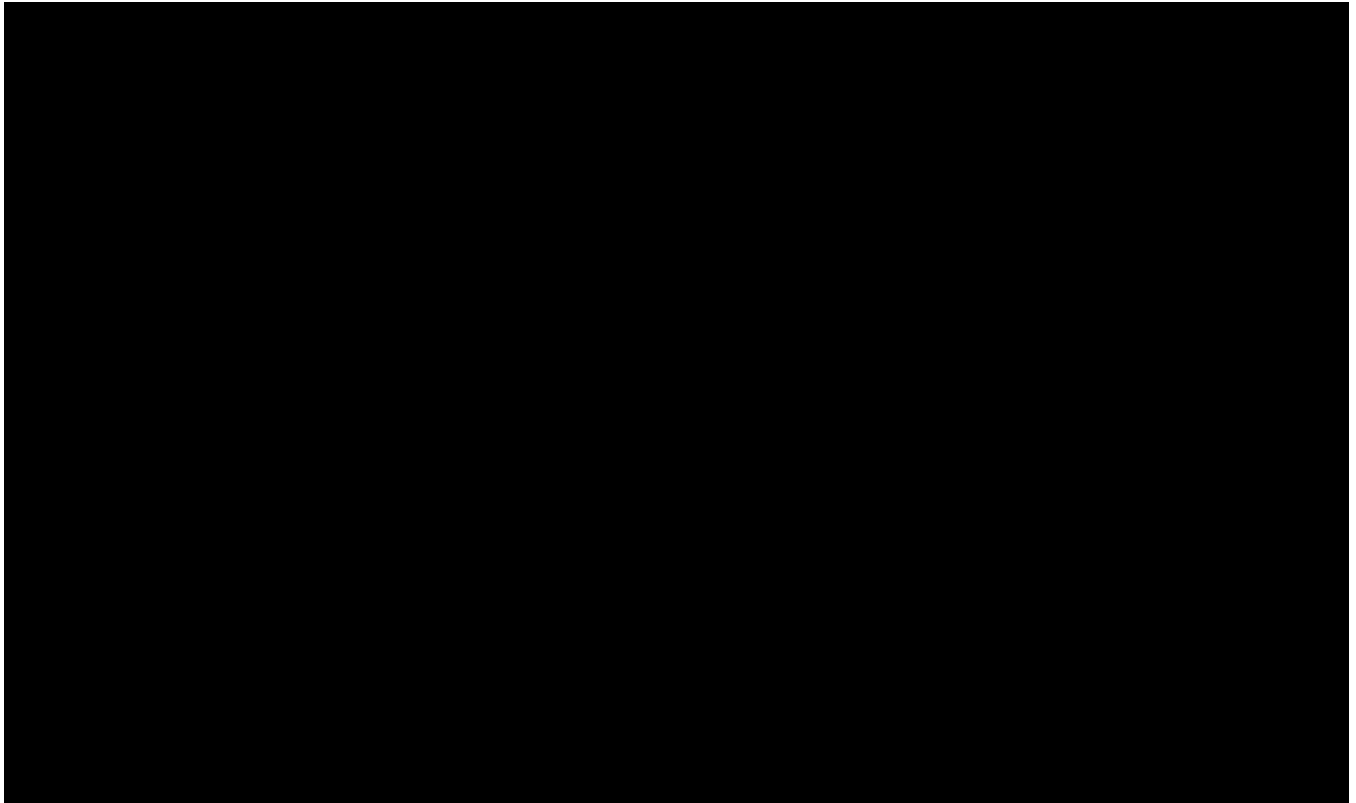


1.4.2.6.3 Wowrack Staffing and Resources

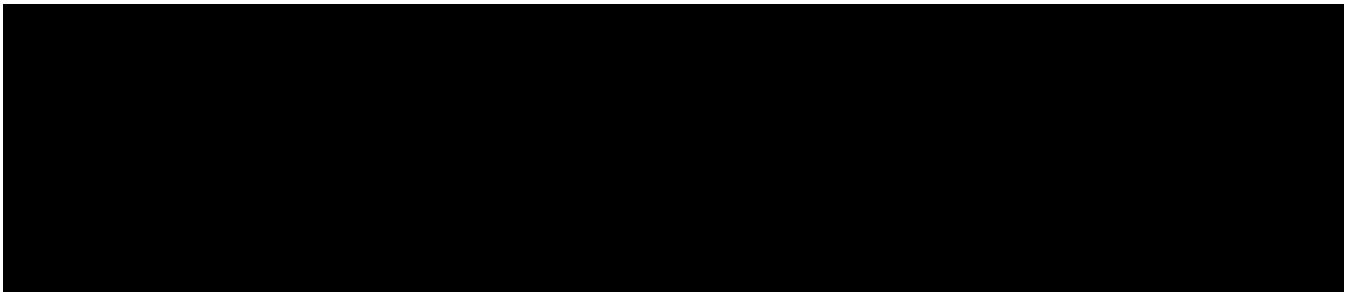


1.4.2.6.4 Wowrack's Uptime History

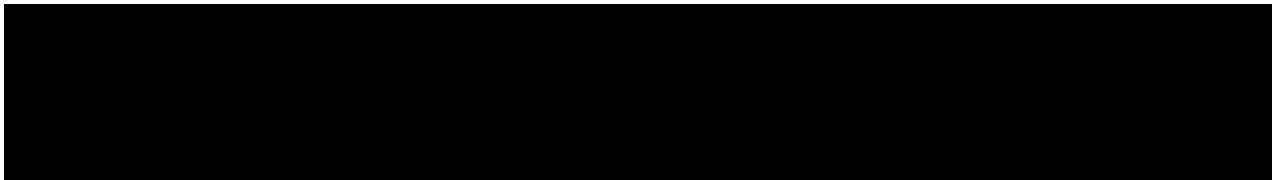




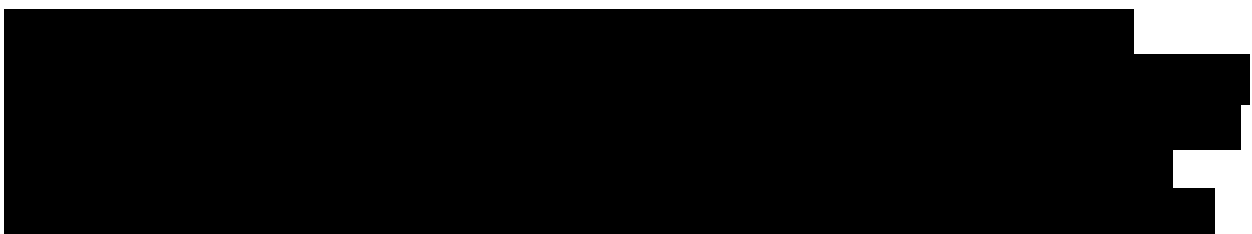
1.4.2.6.5 Wide Area Networking Capabilities



1.4.2.6.6 Single Tenant Private Cloud



1.4.2.6.7 Multi-Site



1.4.2.6.8 Load Balanced / Parallel Transactions

The multi-site infrastructure allows for the hosting of web sites and API services at both data center locations simultaneously. A load balancing strategy providing global server load balancing DNS-based capabilities allows traffic to be routed into either data center. This allows the infrastructure to operate in an active/active mode, dynamically routing traffic between datacenters to avoid over capacity servers or failed services. Inbound traffic is processed in a primary site by highly available middleware applications and databases capable of being migrated or failed-over to the secondary site.

1.4.2.6.9 Hardware Redundancy

All deployed hardware is deployed using industry standard best practices in either active/active or active/passive configurations depending on the technology layer. Any networking devices such as switches, routers, firewalls, fiber switches, etc. are deployed in high availability configurations with at least two devices in each datacenter location. This allows for multiple network and storage network paths between host servers, storage, and wide area networks.

All storage mediums regardless of location in servers or dedicated storage arrays are protected with RAID ensuring disk failures or disk performance issues can be isolated and protected from impacting the system as a whole.

Multiple host servers are deployed to create a larger, distributed resource pool the virtual machines and appliances can use to perform the compute operations necessary. For example, five host servers are clustered together into a virtual datacenter to create a pool of CPU and Memory resources. The deployed virtual machines can operate on any of the five hosts that has enough capacity to run the provisioned resource requirements. Hosts are configured with greater resource availability then the system requires to provide for availability, scalability and redundancy in the case of a host failure or intentional host maintenance.

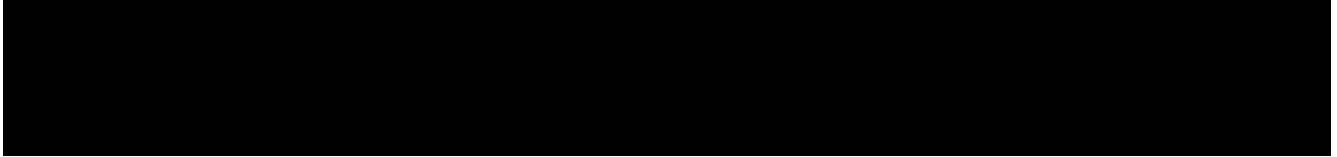
1.4.2.6.10 Data Resiliency

Data is written into multiple databases in near-real time ensuring transactional integrity of the database. All databases, virtual machines and applications are stored on enterprise class storage devices leveraging redundant hard drives (RAID) to provide a resilient data infrastructure. Additionally, this data is replicated to secondary storage locations as well as archived to the off-site data storage location outside of the Seattle area.

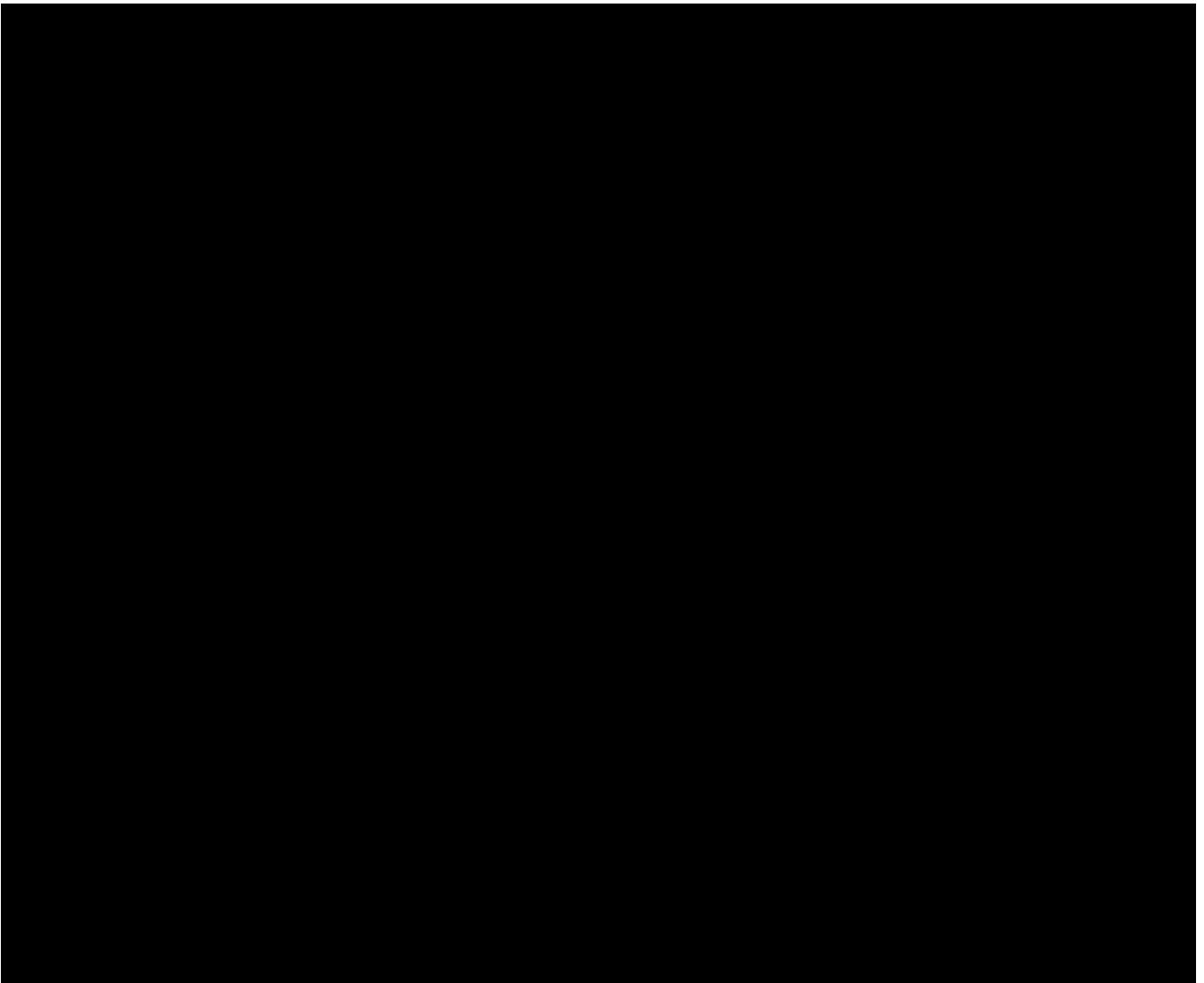
1.4.2.6.11 Hardware Refresh

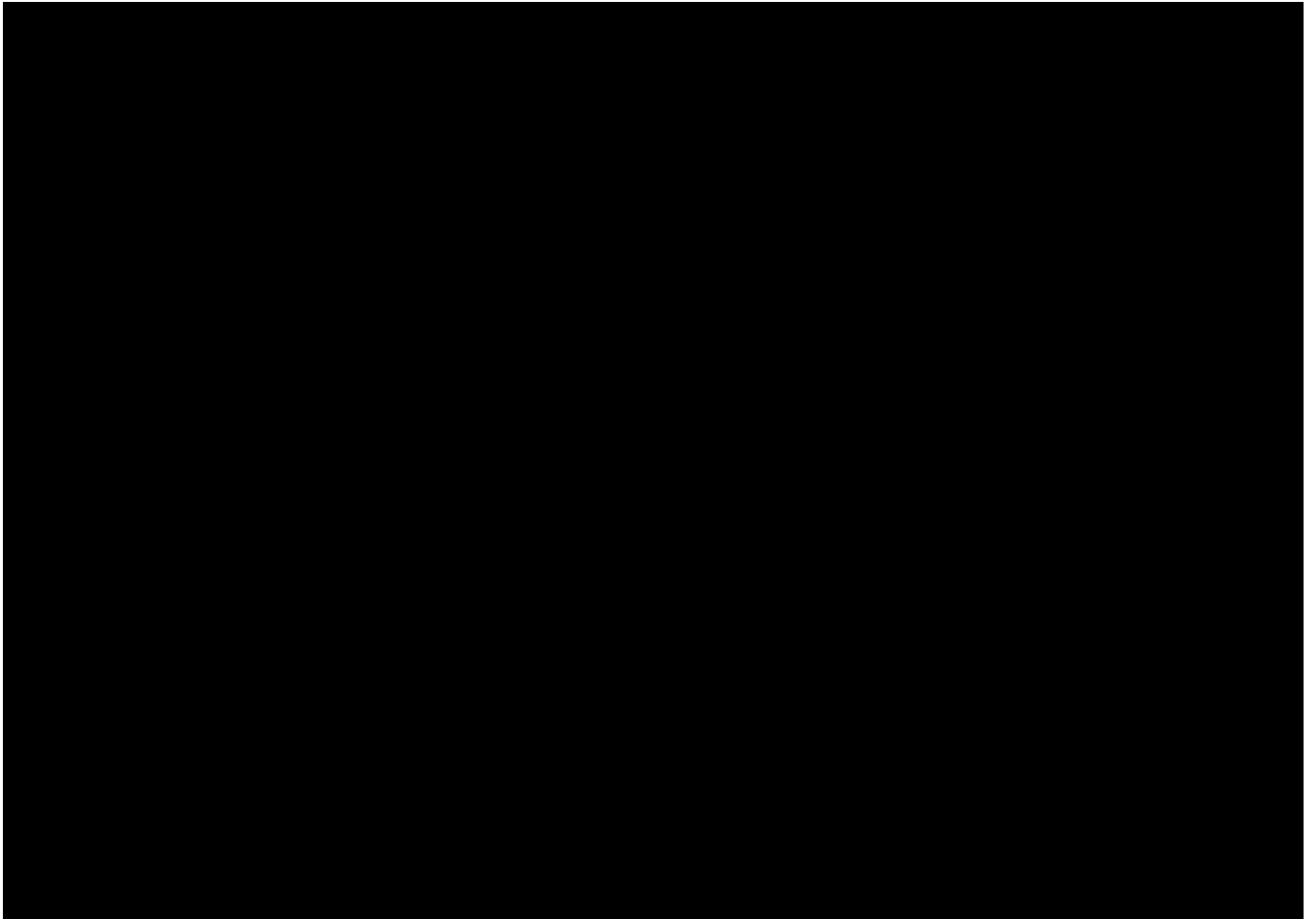
Over such a long period of performance, the back office system will necessarily undergo one or more hardware refresh cycles. Estimated to be at least every five (5) years, the INIT and WOWRACK teams will ensure maximum availability through regular hardware maintenance and refresh.

1.4.2.7 Operational Security

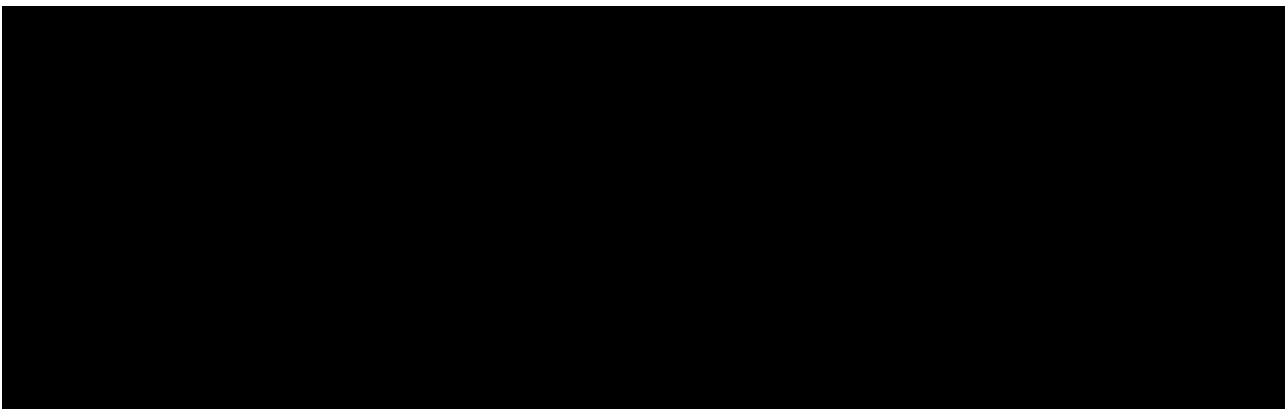


1.4.2.8 Security Operations Center

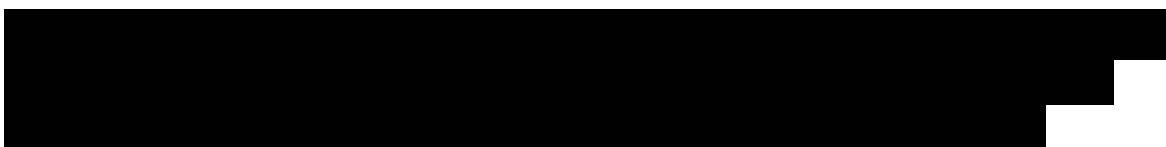




1.4.2.8.1 Change Management



1.4.2.8.2 Web Server Change Tracking



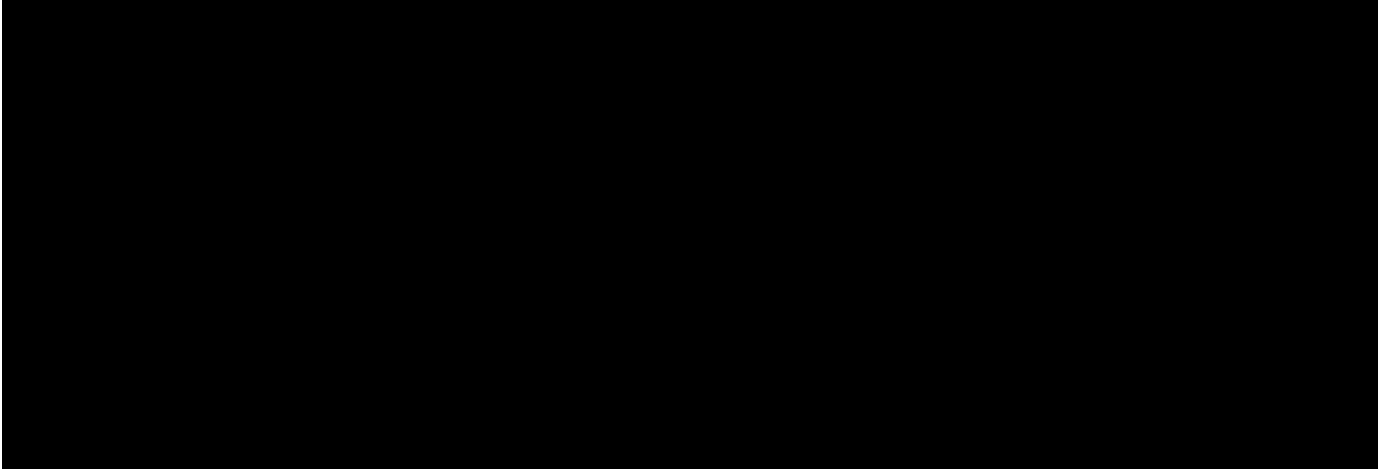
1.4.2.8.3 Network Device Change Tracking

1.4.2.8.4 Databases Configuration Change Tracking

1.4.2.8.5 Malware/Antivirus Protection

1.4.2.8.6 Patch Management

1.4.2.8.7 Capacity Management



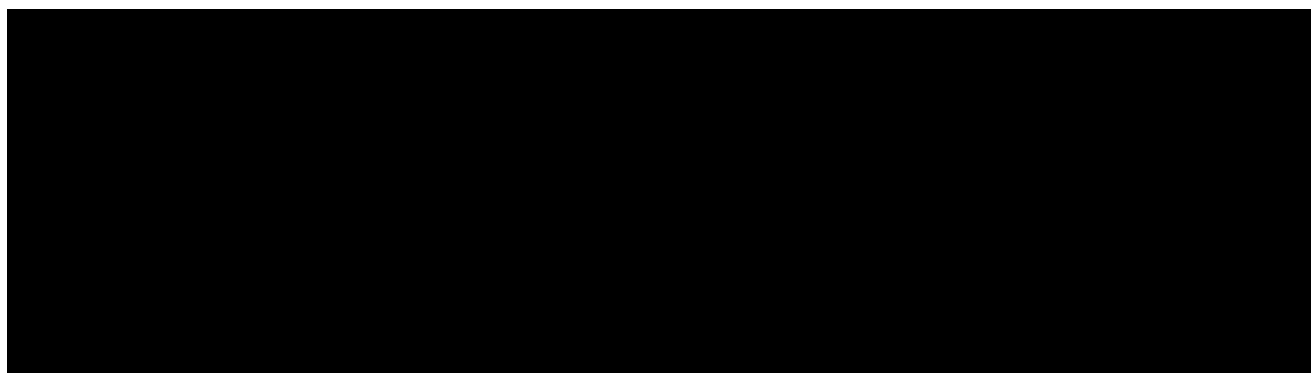
1.4.2.8.7.1 SolarWinds Network Performance Manager

SolarWinds Network Performance Manager (NPM) provides performance monitoring and trend analysis for network and server devices in the back office environment. The solution extends beyond internal network devices to monitor and track WAN performance and capacity between the back office and the agency endpoints. While primarily used for system monitoring and reporting, the NPM platform provides the data collection and analysis needed for network capacity monitoring.

1.4.2.8.7.2 SolarWinds Server Application Manager

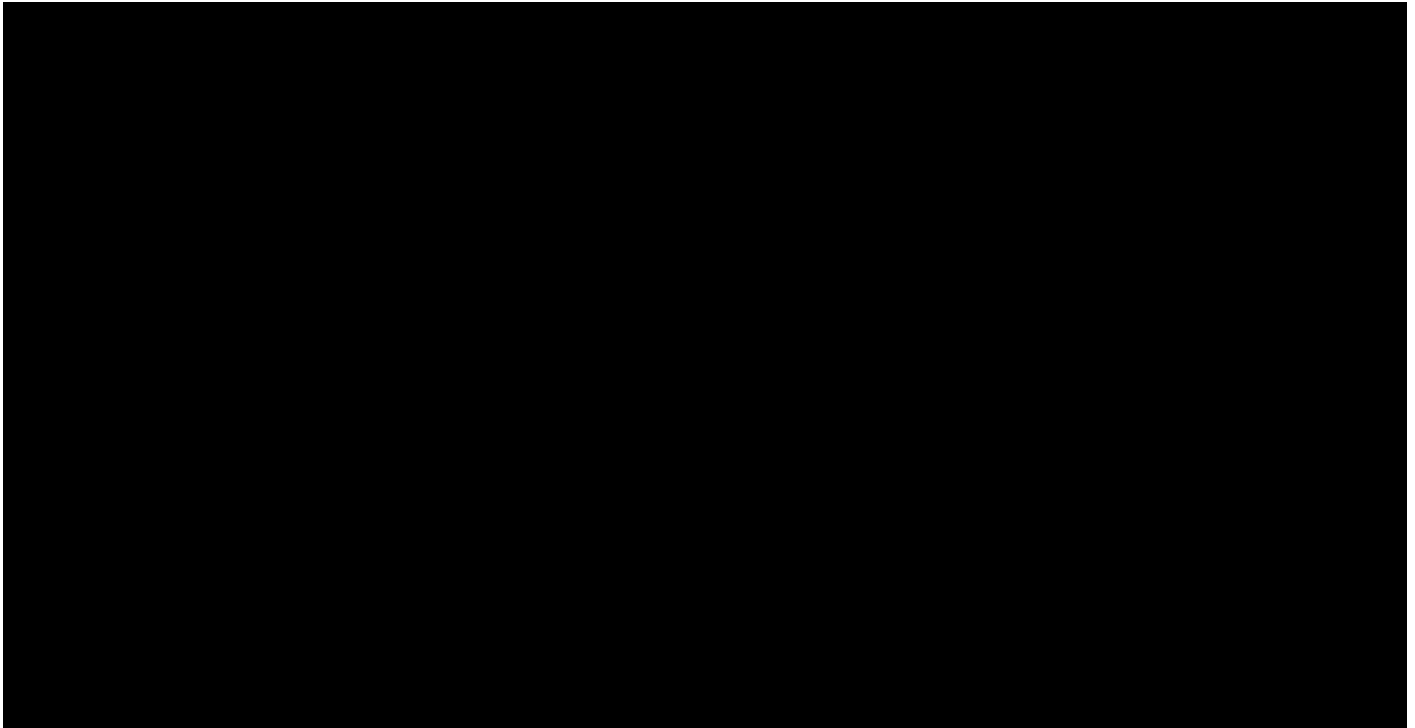
SolarWinds Server Application Manager (SAM) provides performance monitoring and trend analysis of server resources in the back-office systems. SAM provides the capability for timeline based data correlation to provide operational intelligence across the technology stack. This data correlation allows for trend analysis intelligence to be performed between network, server, storage, and virtualization layers. While primarily used for system monitoring and reporting, the SAM platform provides the data collection and analysis needed for system resource monitoring.

1.4.2.8.8 Environment Separation

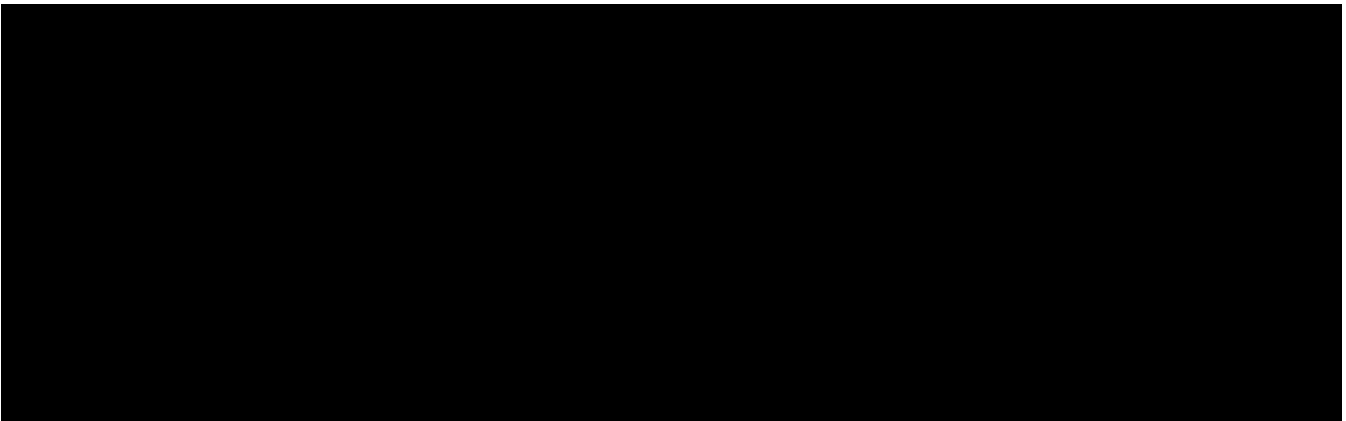




1.4.2.8.9 Backup



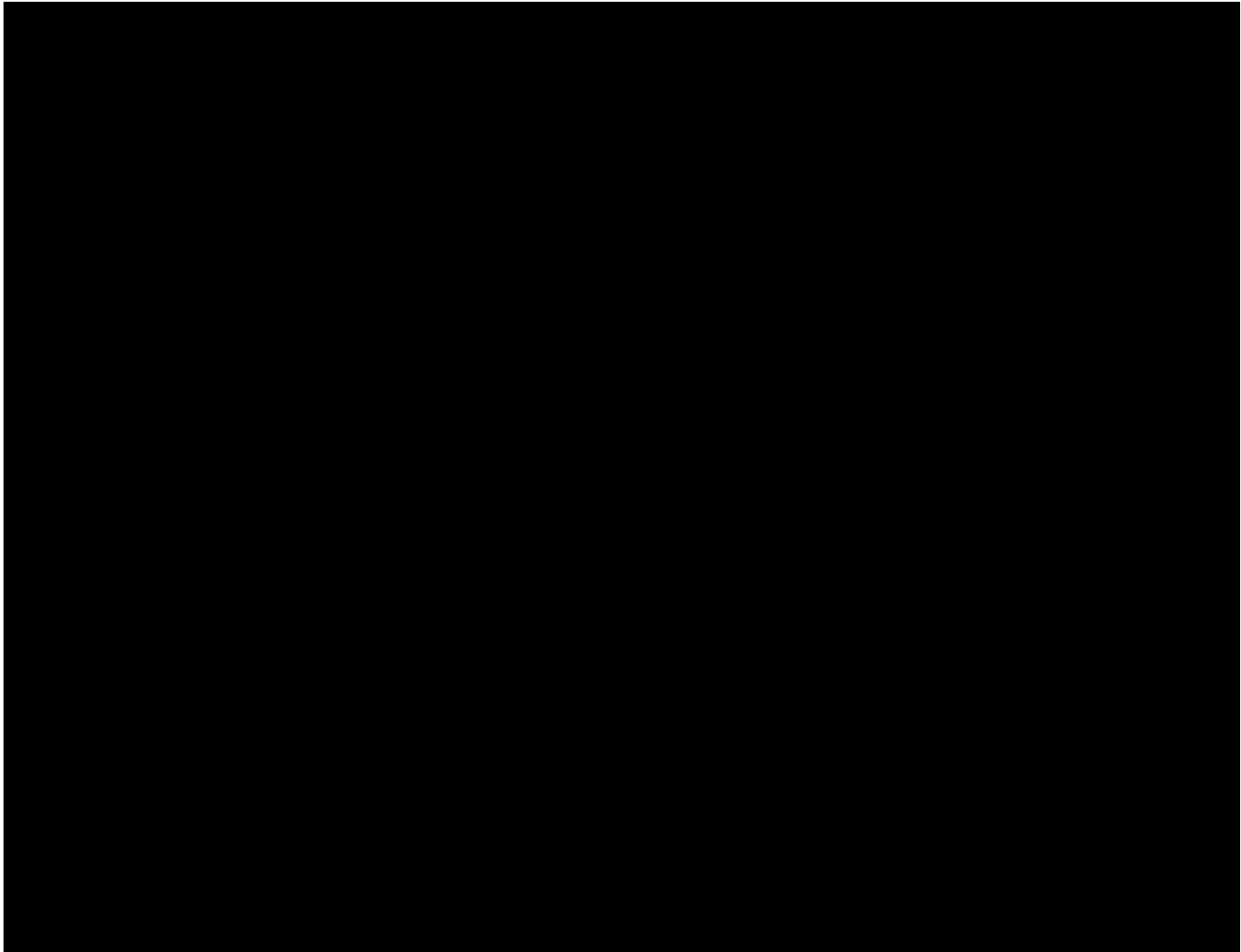
1.4.2.8.10 Network Segmentation



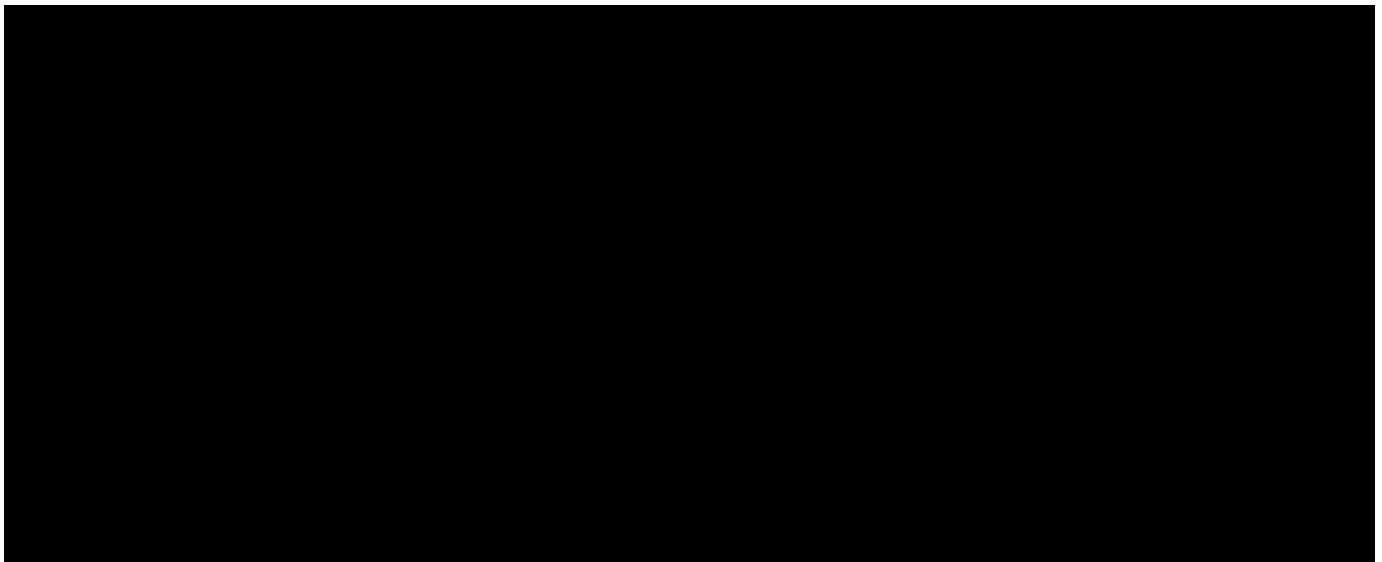
1.4.2.8.11 Server Hardening

1.4.2.8.12 Security Incident and Log Management

1.4.2.9 Business Continuity & Disaster Recovery



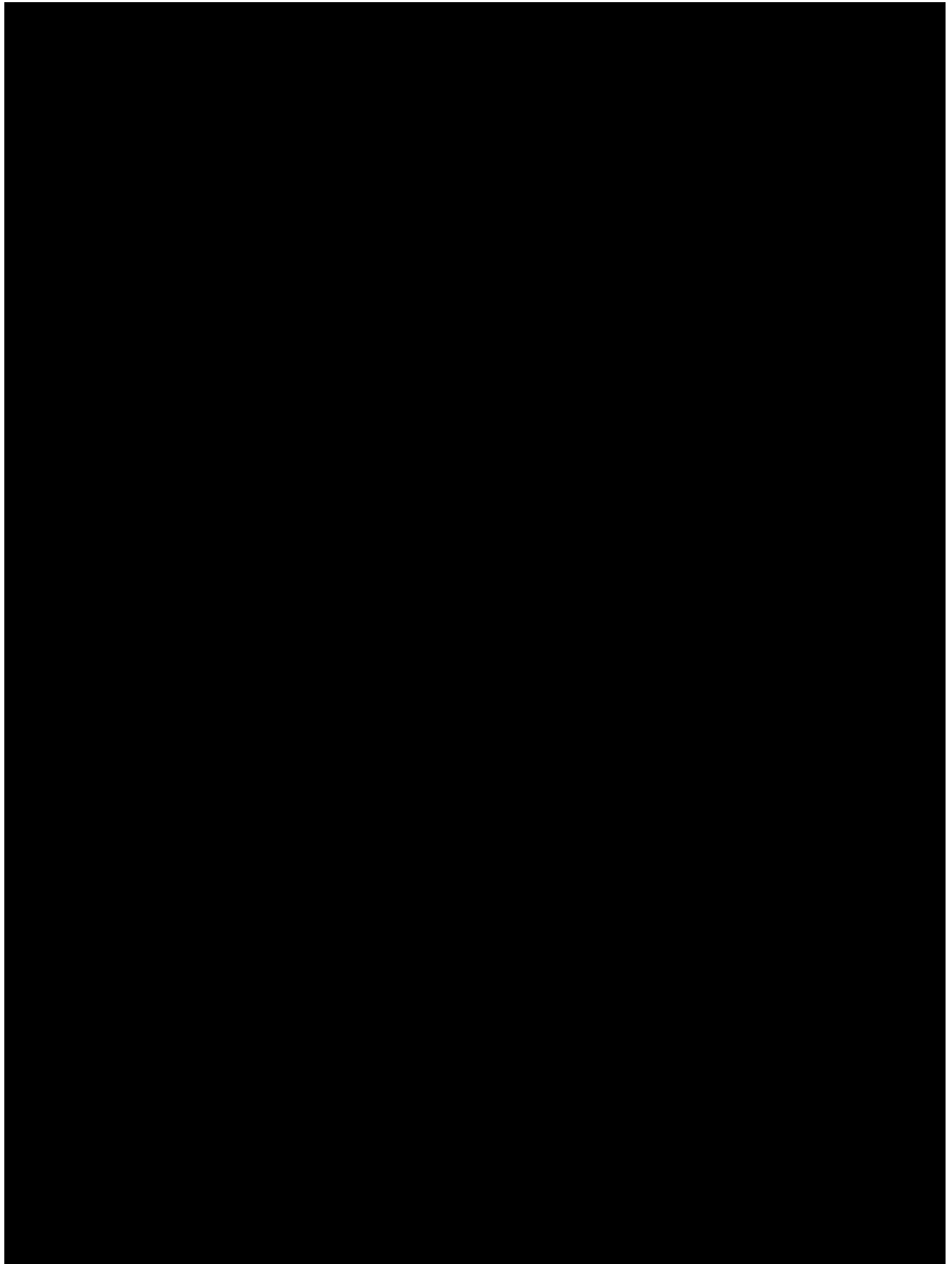
1.4.2.9.1 Disaster Recovery Plan

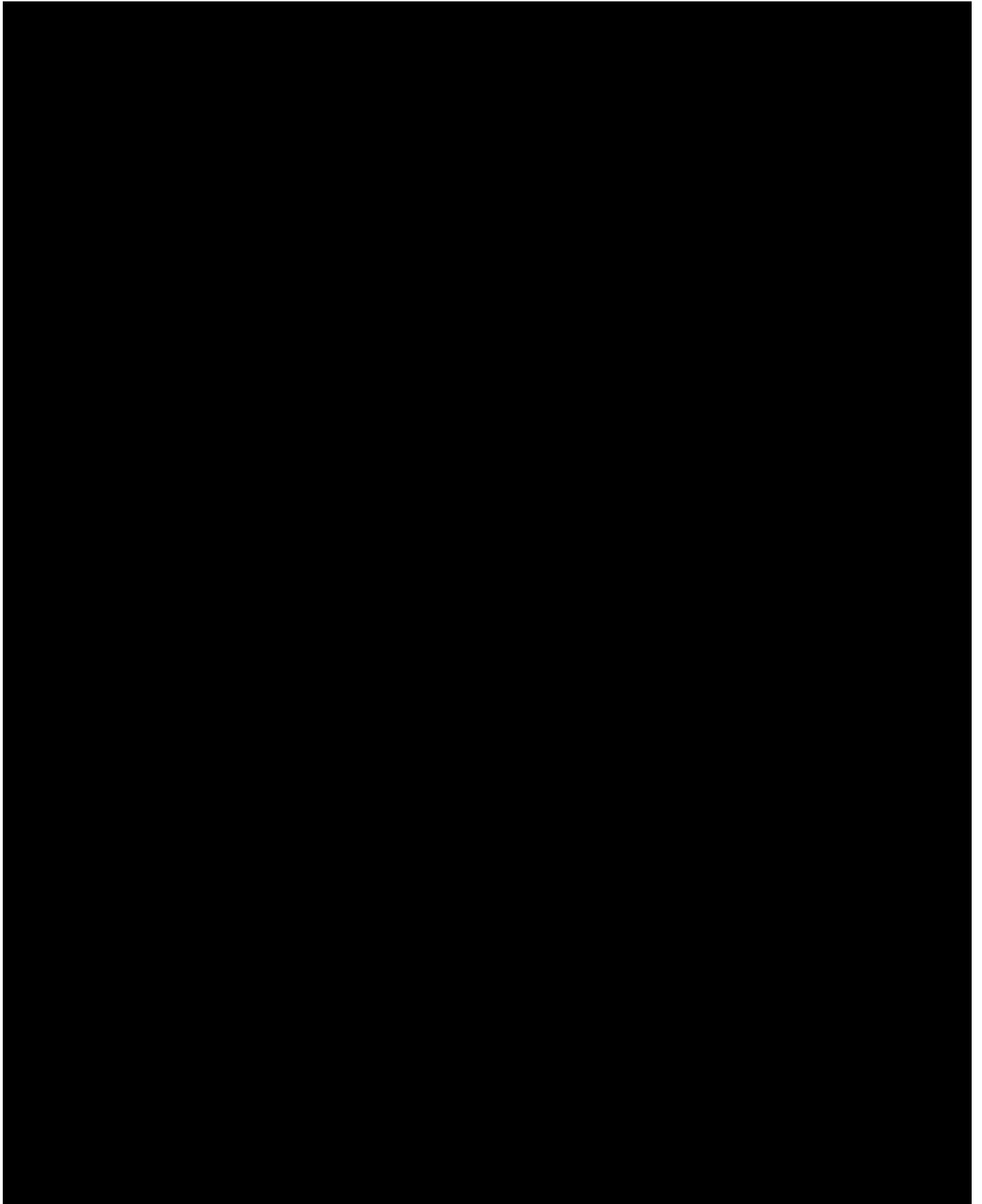


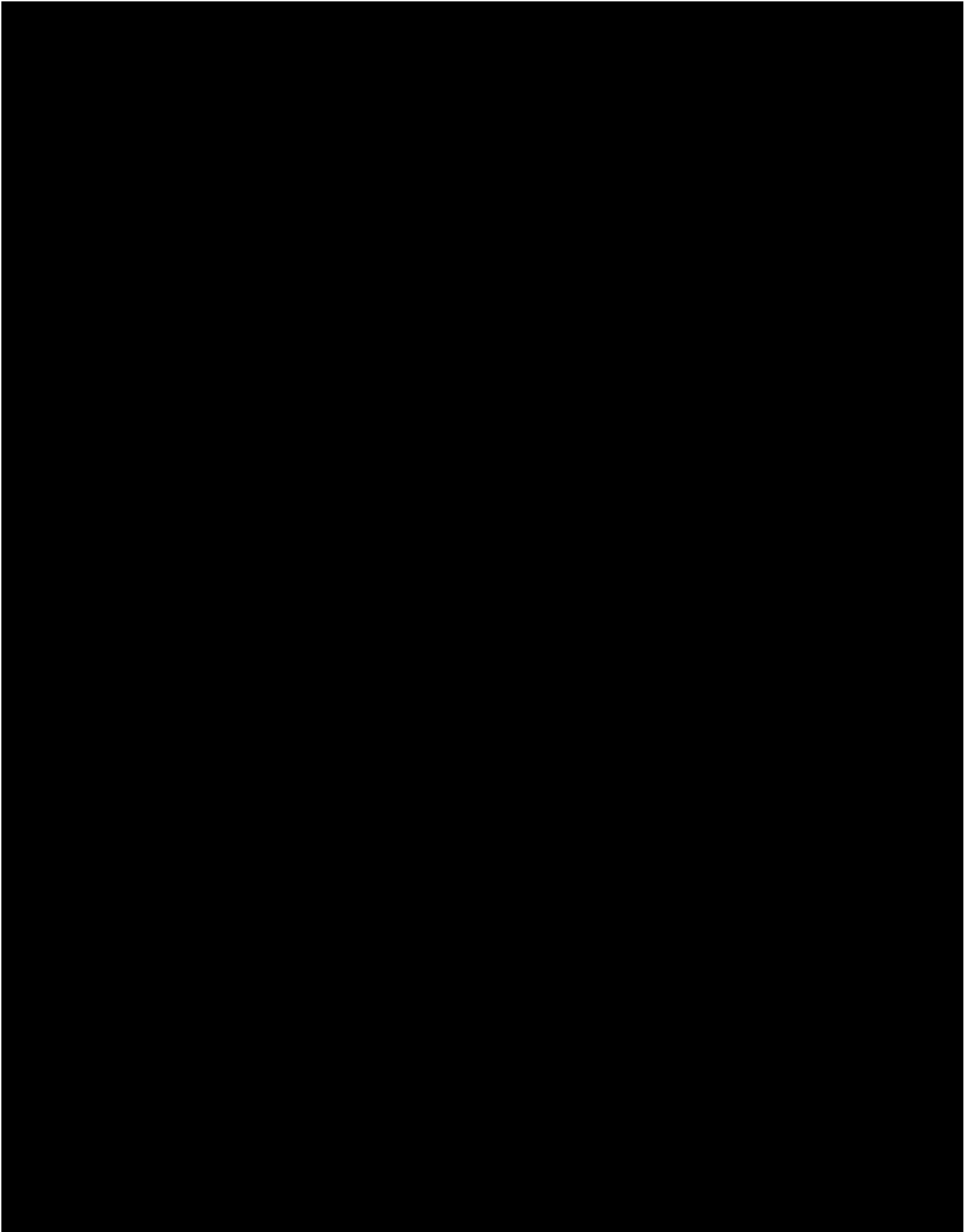
1.4.2.9.2 Out of Region Backup

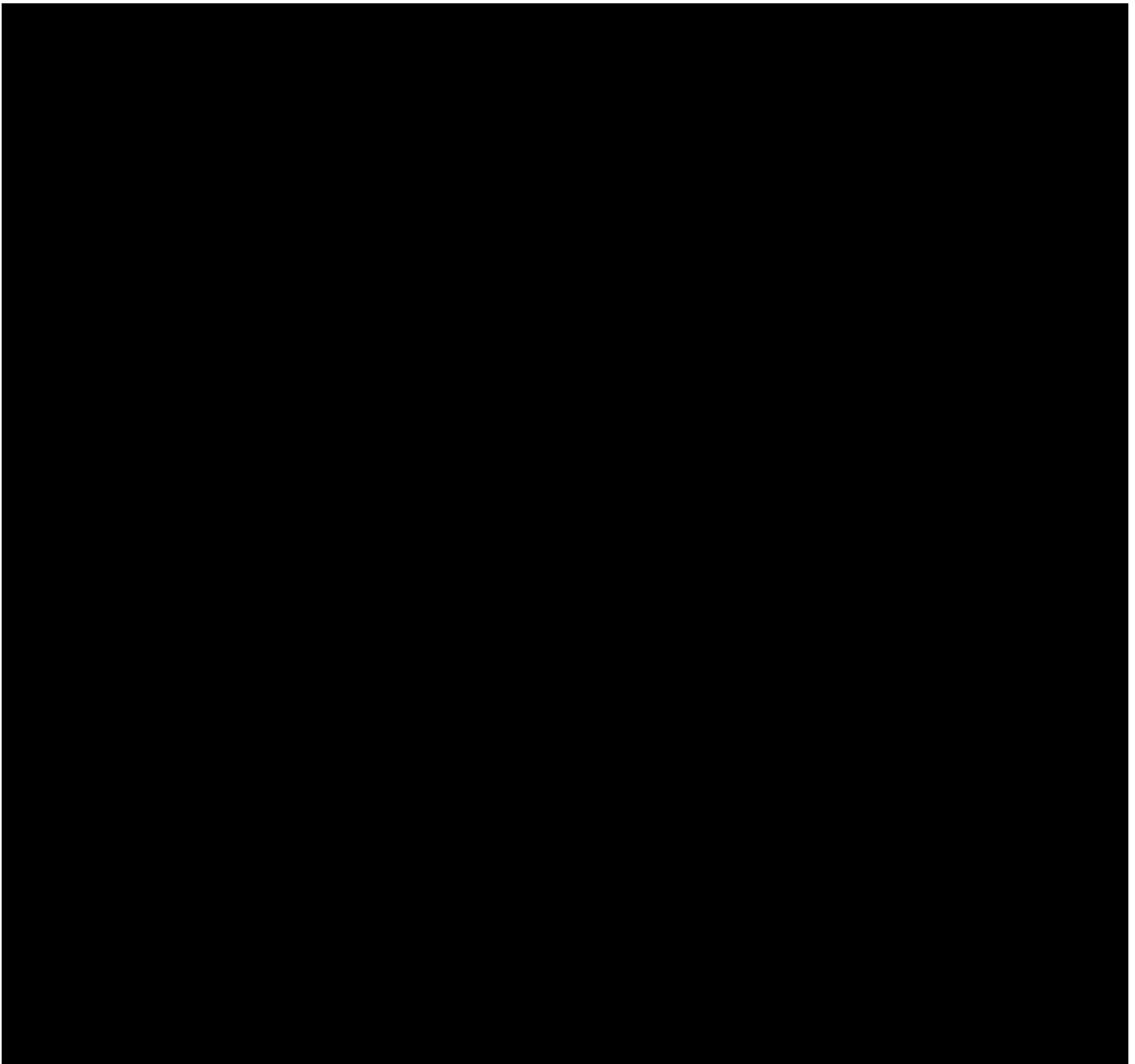
1.4.3 System Integration Services

1.4.3.1 API Management









1.4.3.2.1 ISI Communication Example

In this example the validator requests the route number from the CAD/AVL system. The validator application sets a cyclic trigger and a change trigger for the route data items. This means that the CAD/AVL system will send the route number whenever the number changes and in addition every 60 seconds.

The application also sets an identifier <Isild? for the IsiPut Message to have to ability to disable this message later.

The IsiGet Message looks like:

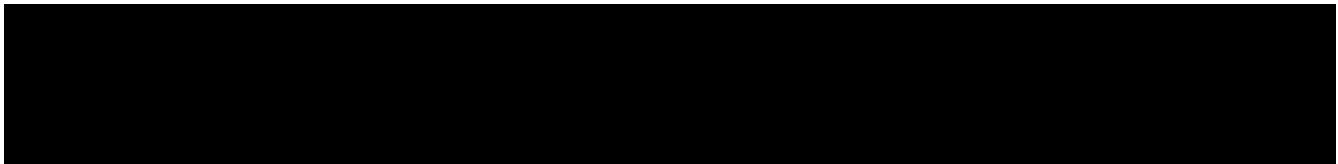


```
<IsiGet>  
  <IsiId>123</IsiId>  
  
  <Items>RouteNo</Items>  
  
  <OnChange>RouteNo</OnChange>  
  
  <Cyclic>60</Cyclic>  
  
</IsiGet>
```

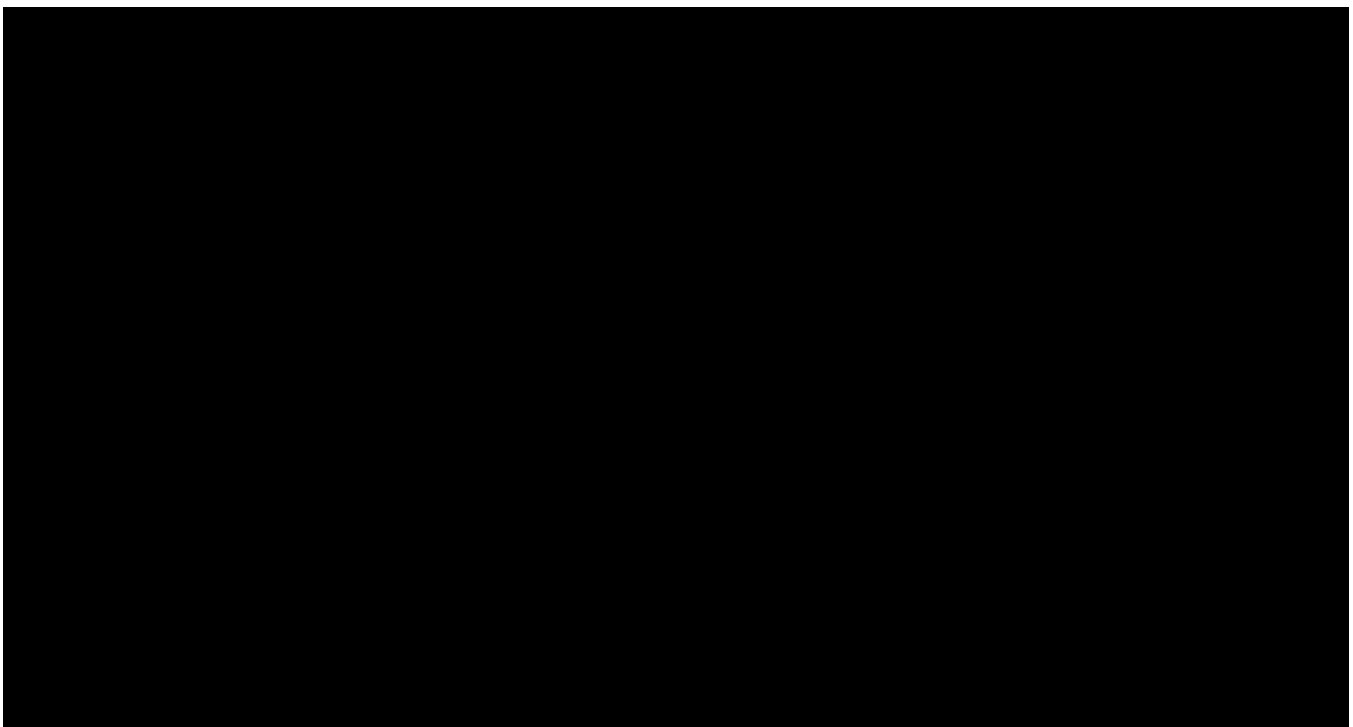
The IsiPut Message that the CAD/AVL system will return looks like this:

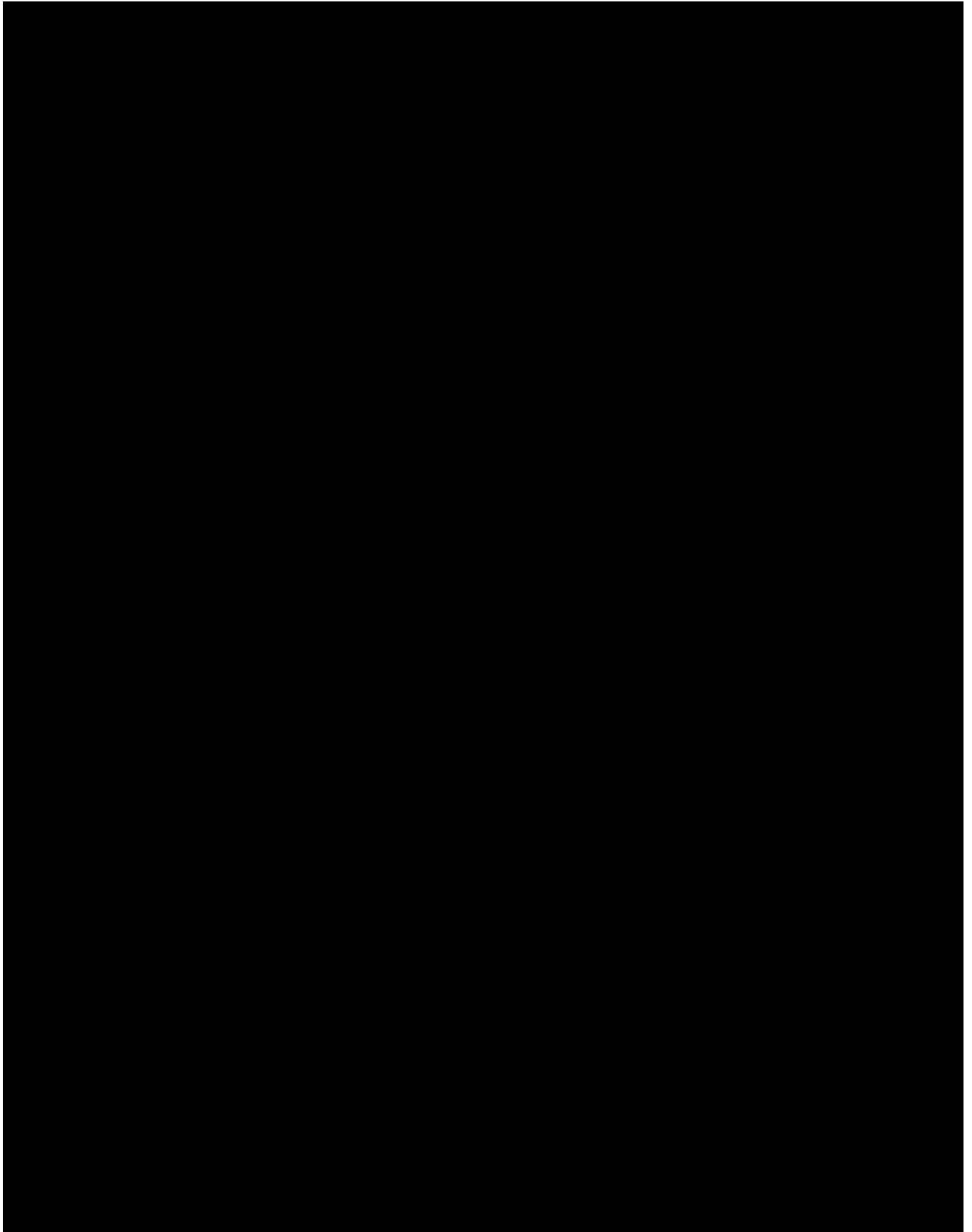
```
<IsiPut>  
  <IsiId>123</IsiId>  
  
  <BlockNo>1401</BlockNo>  
  
</IsiPut>
```

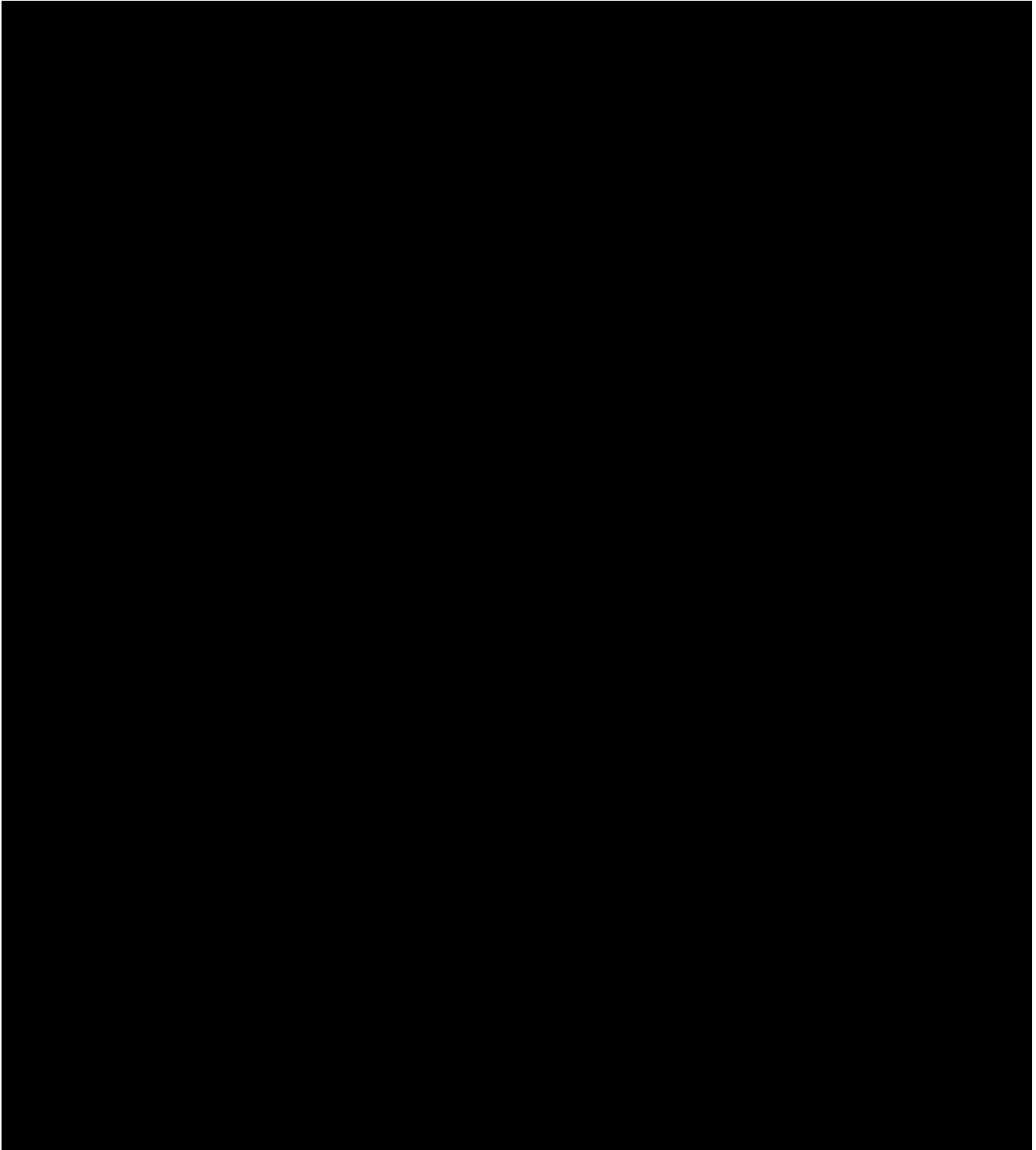
1.4.3.3 Customer & Agency Interfaces Integration

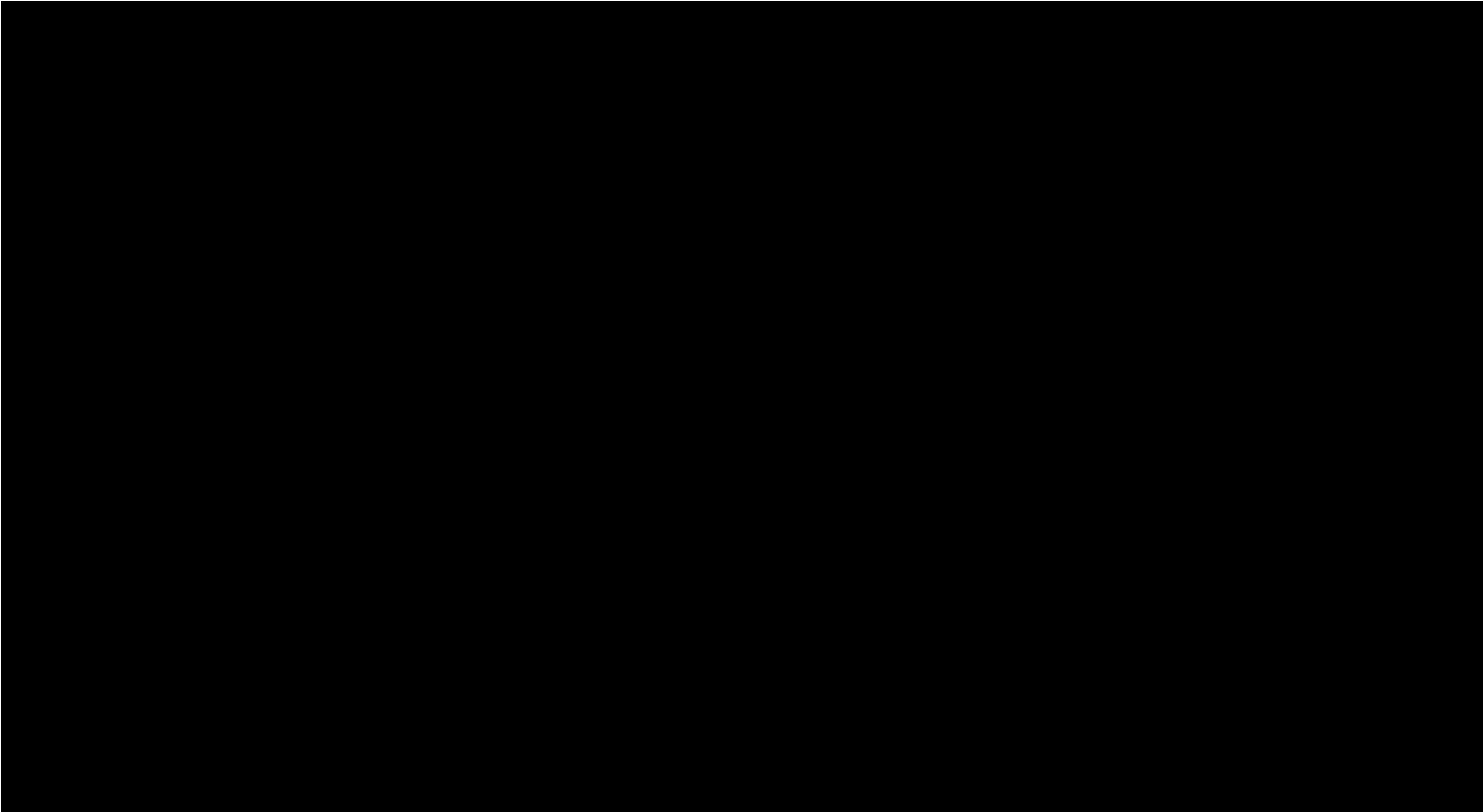


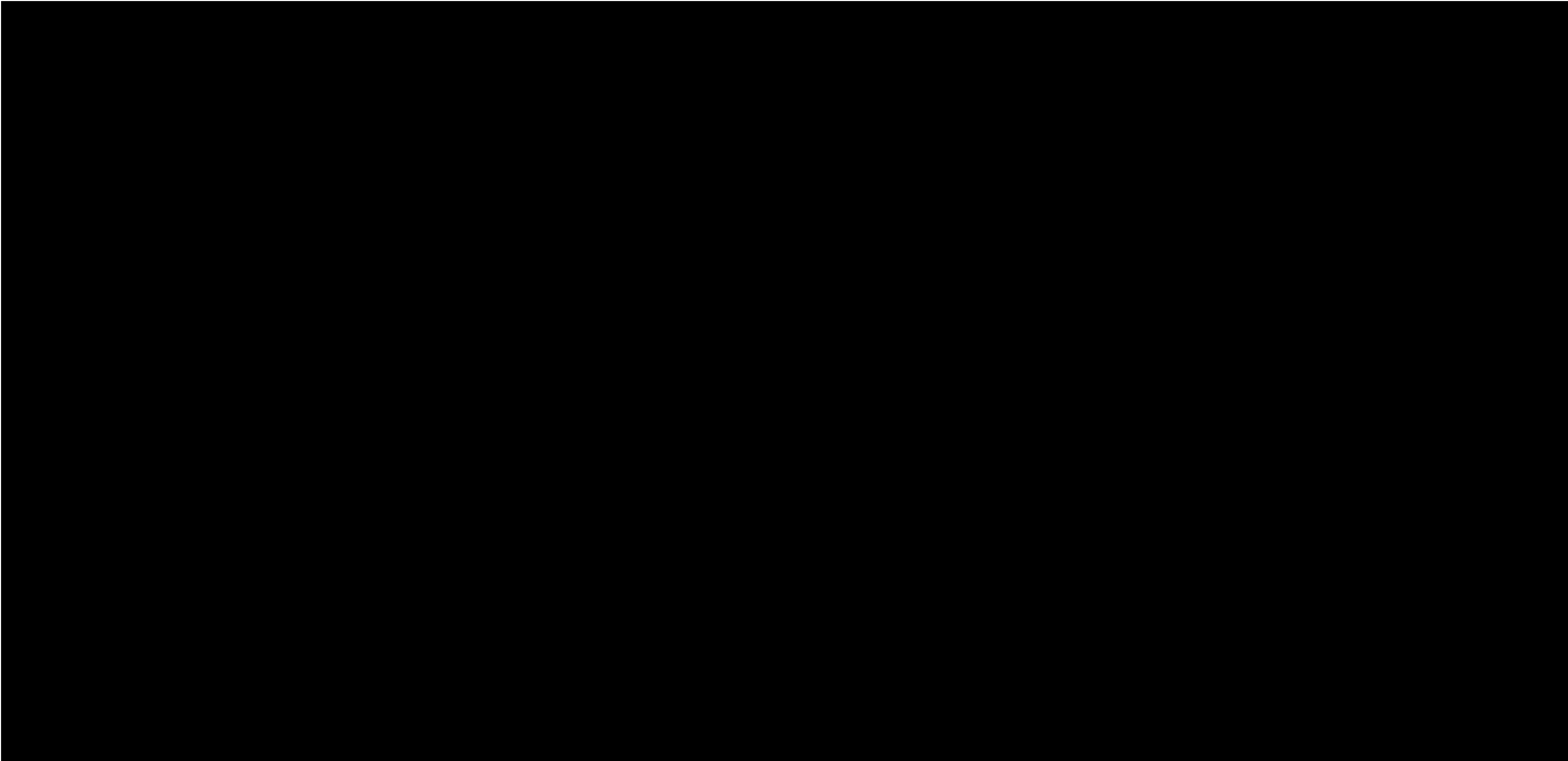
1.4.3.4 Washington State Ferries

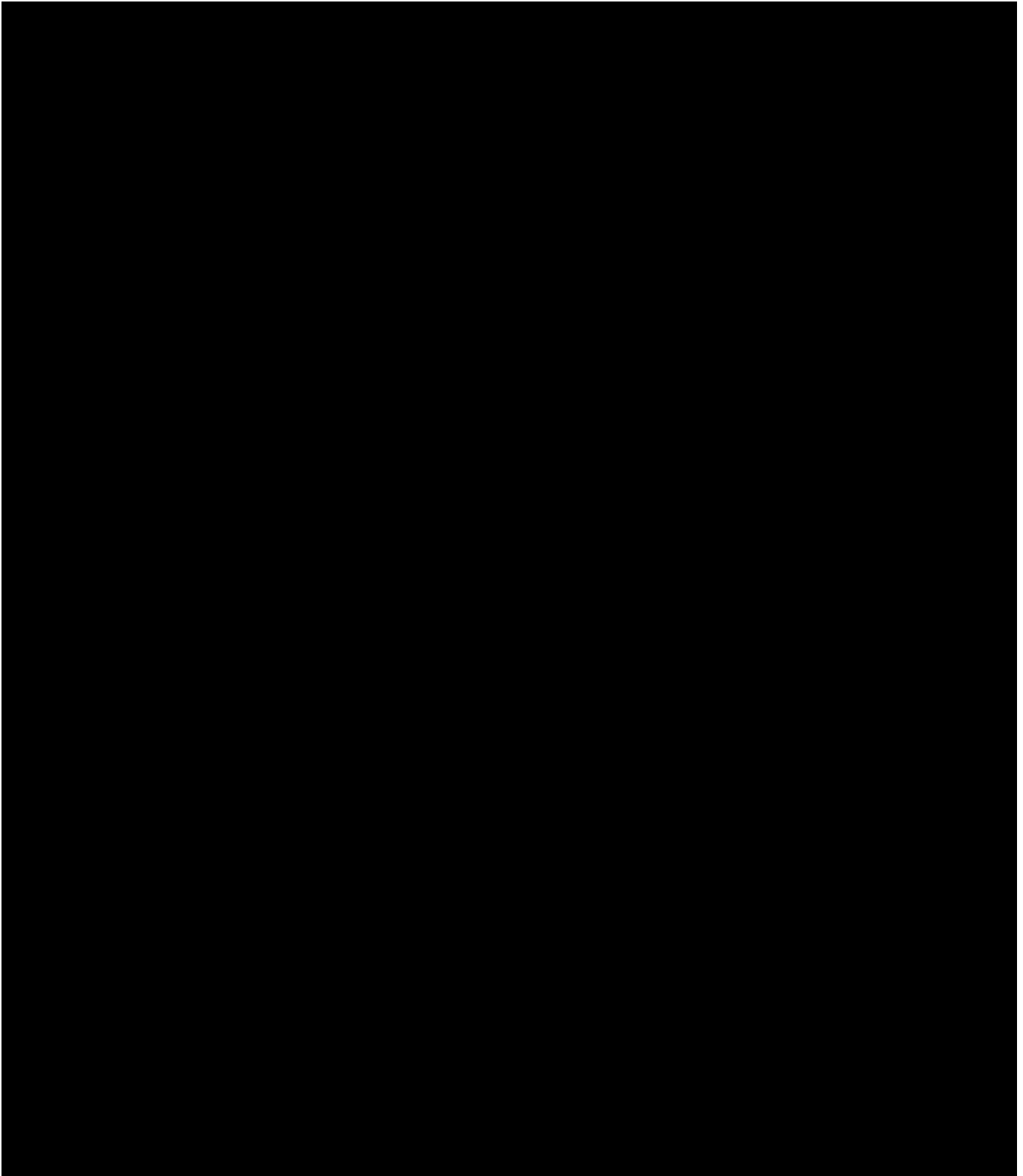


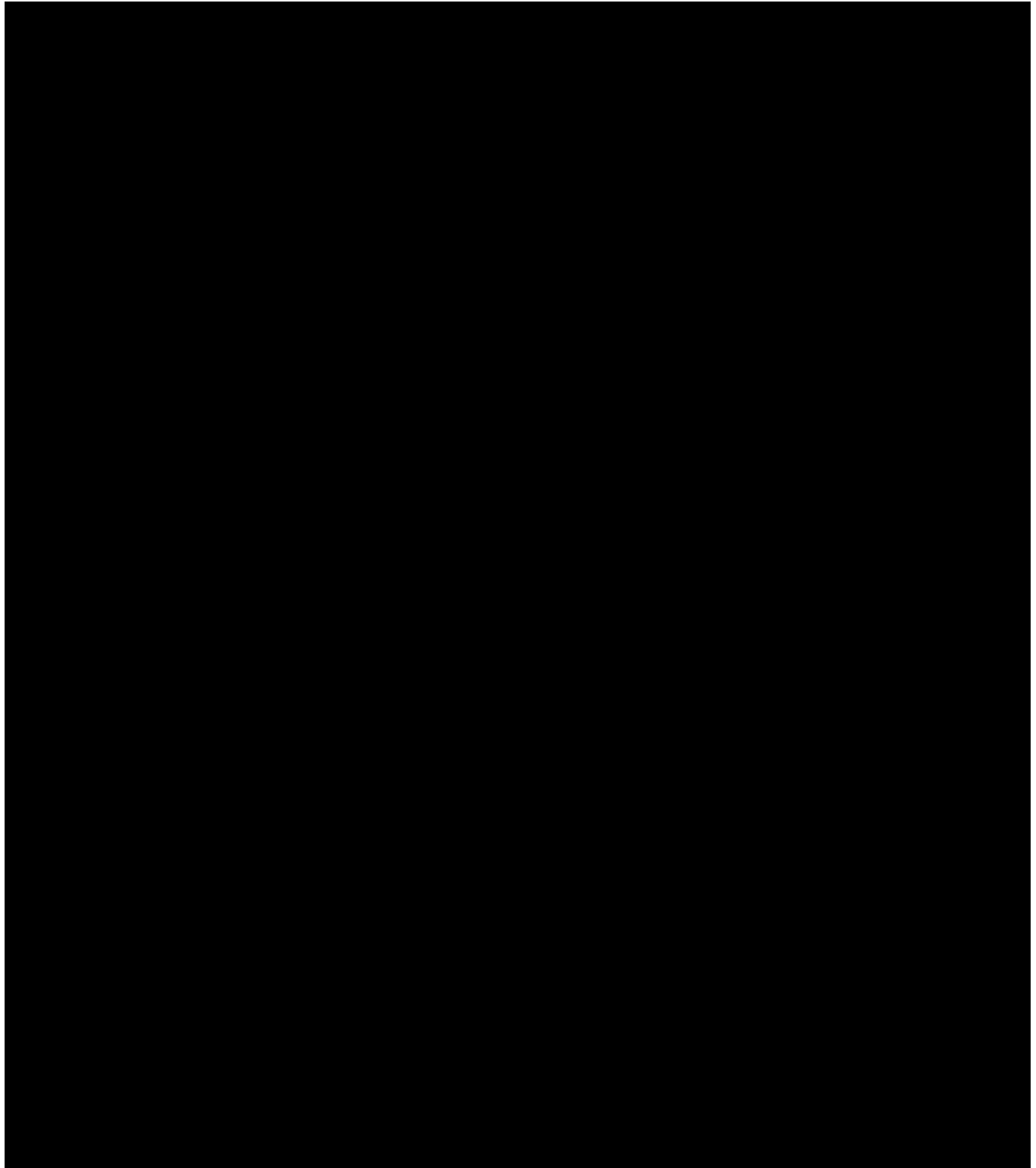


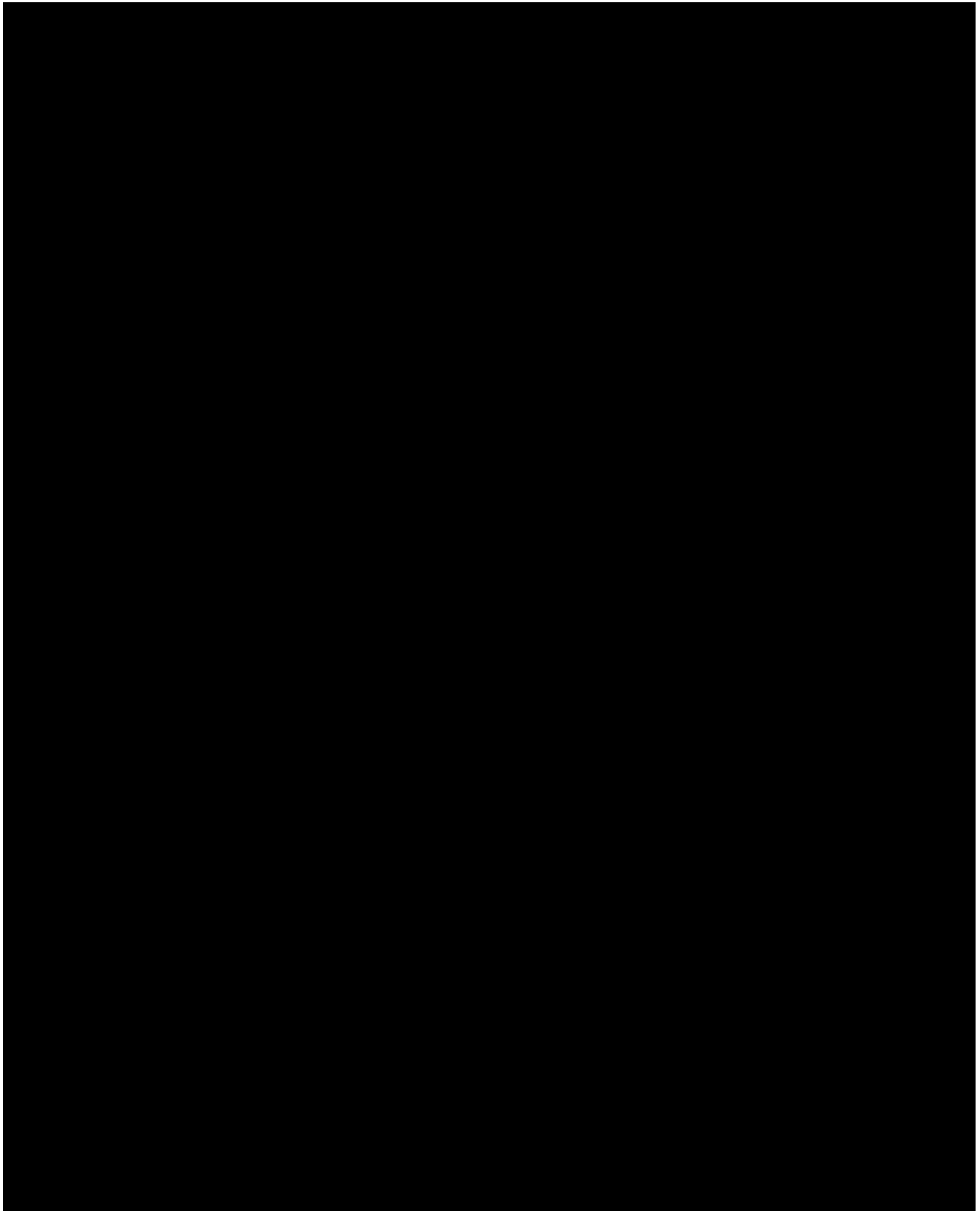


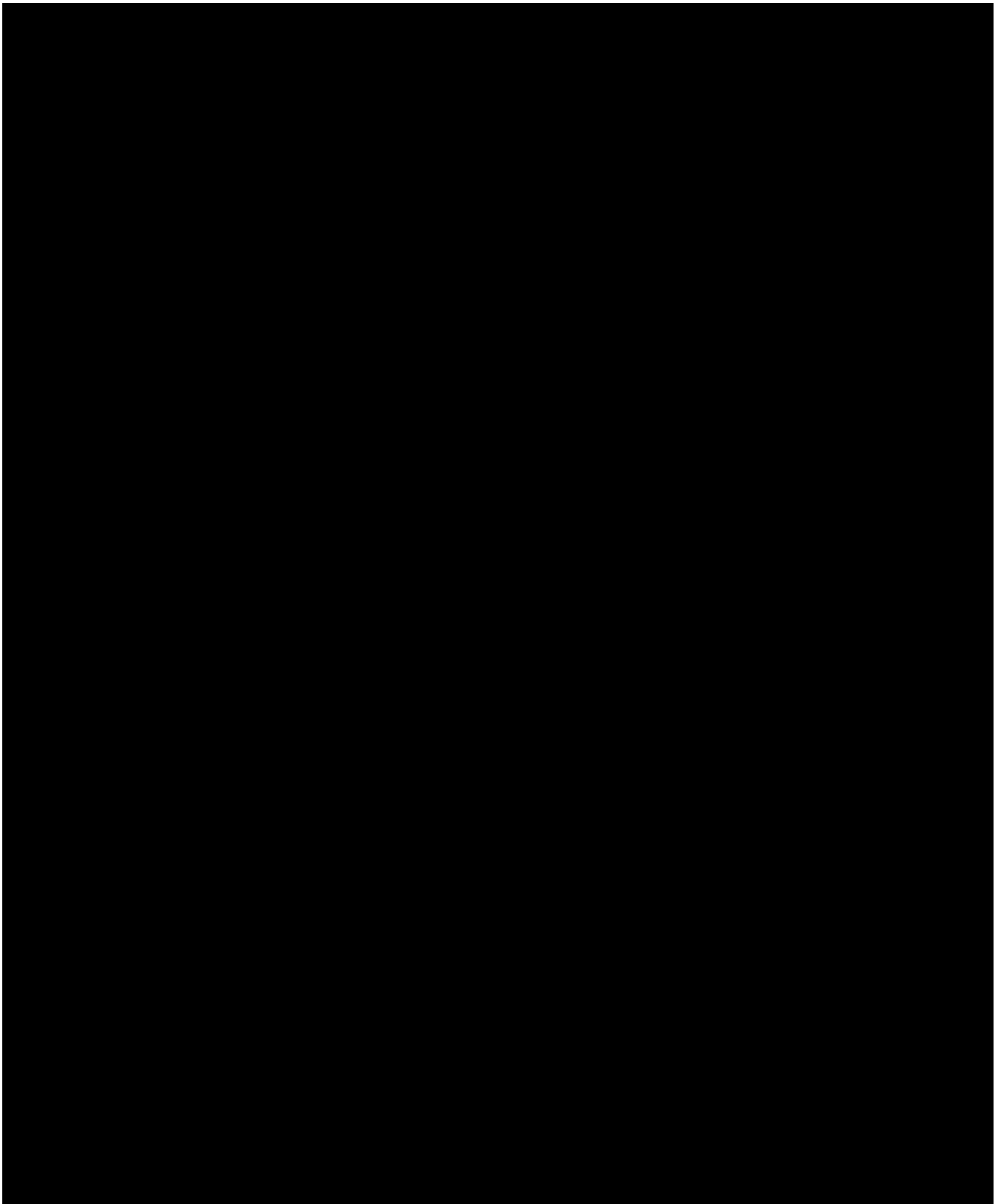


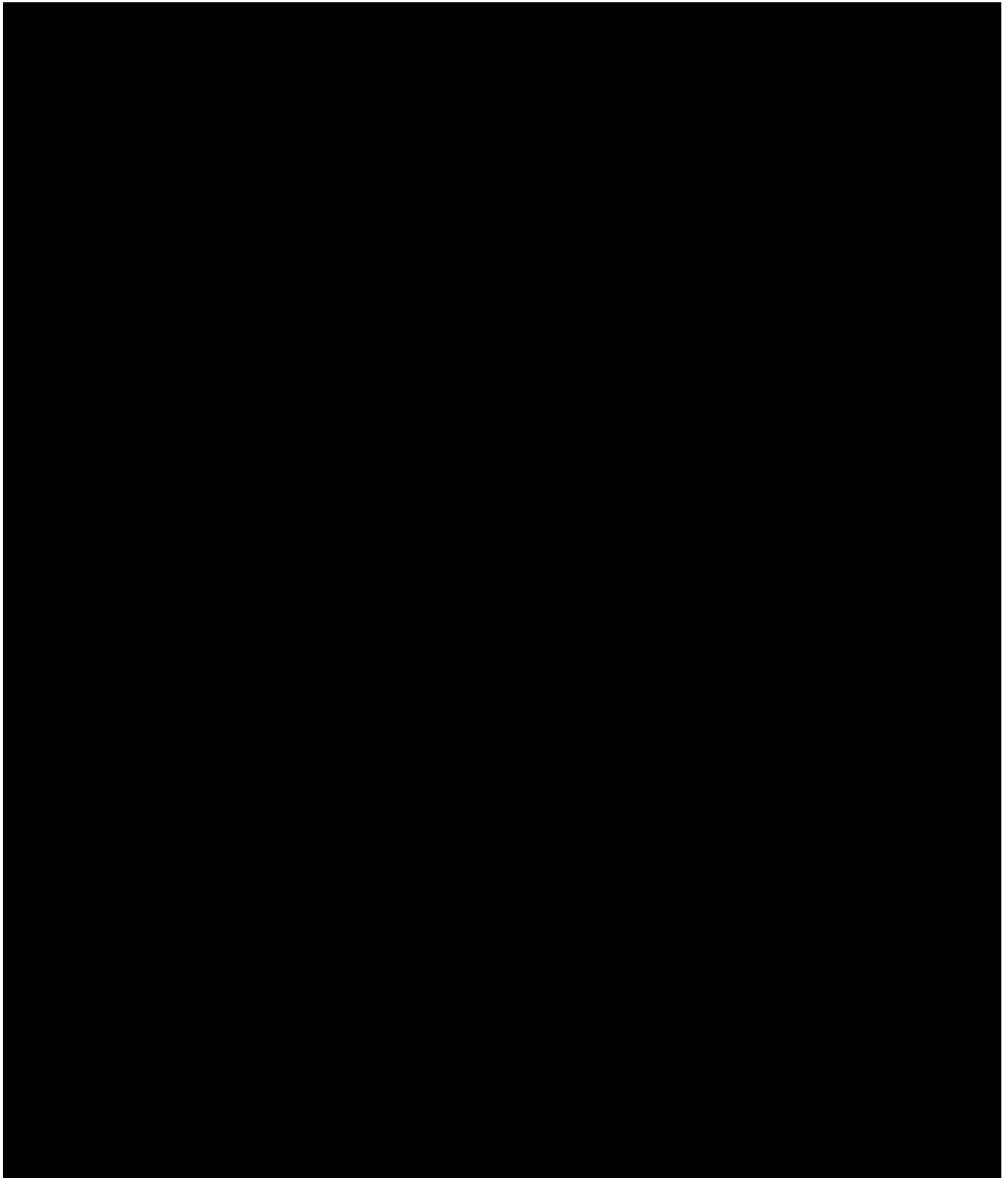


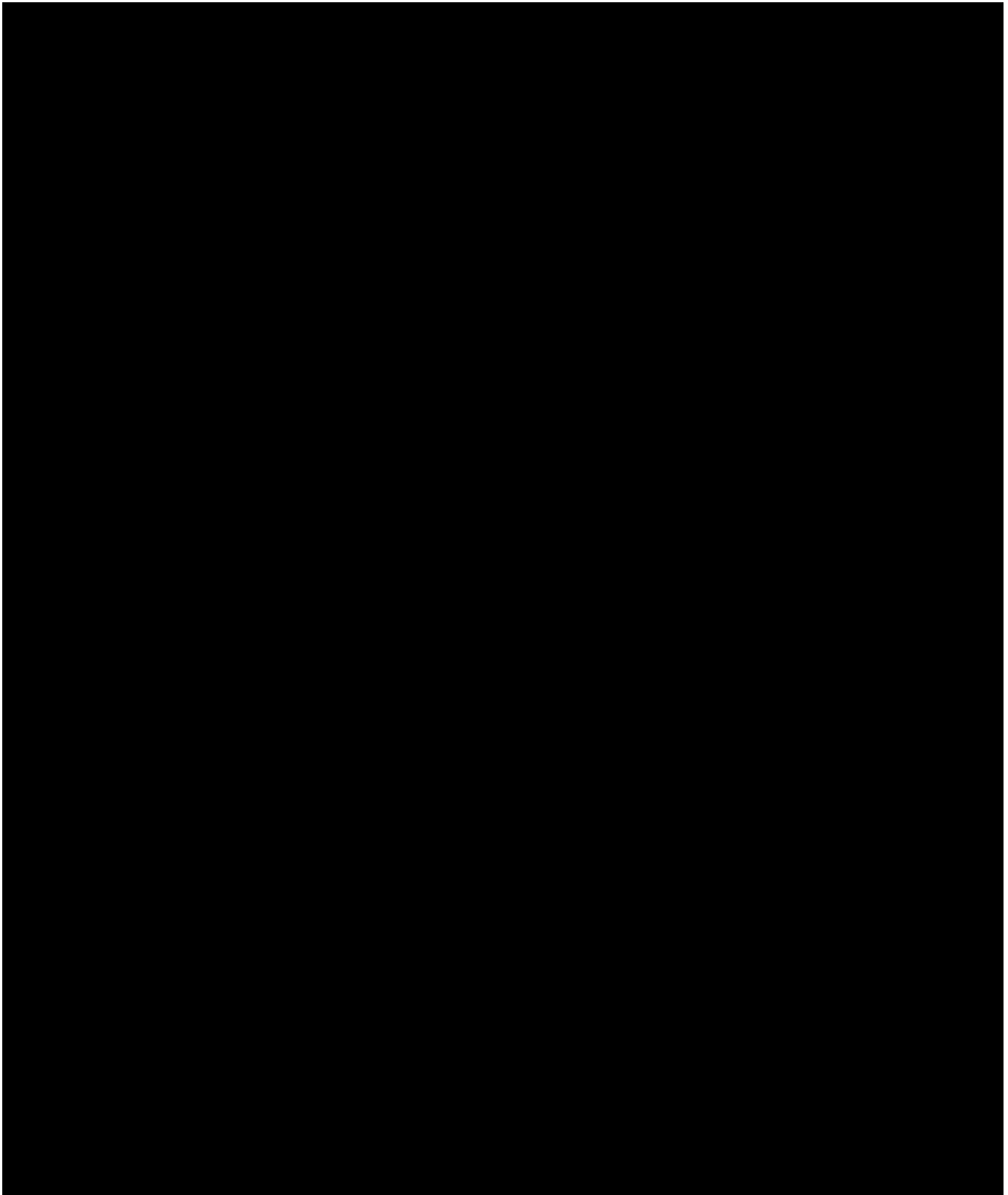




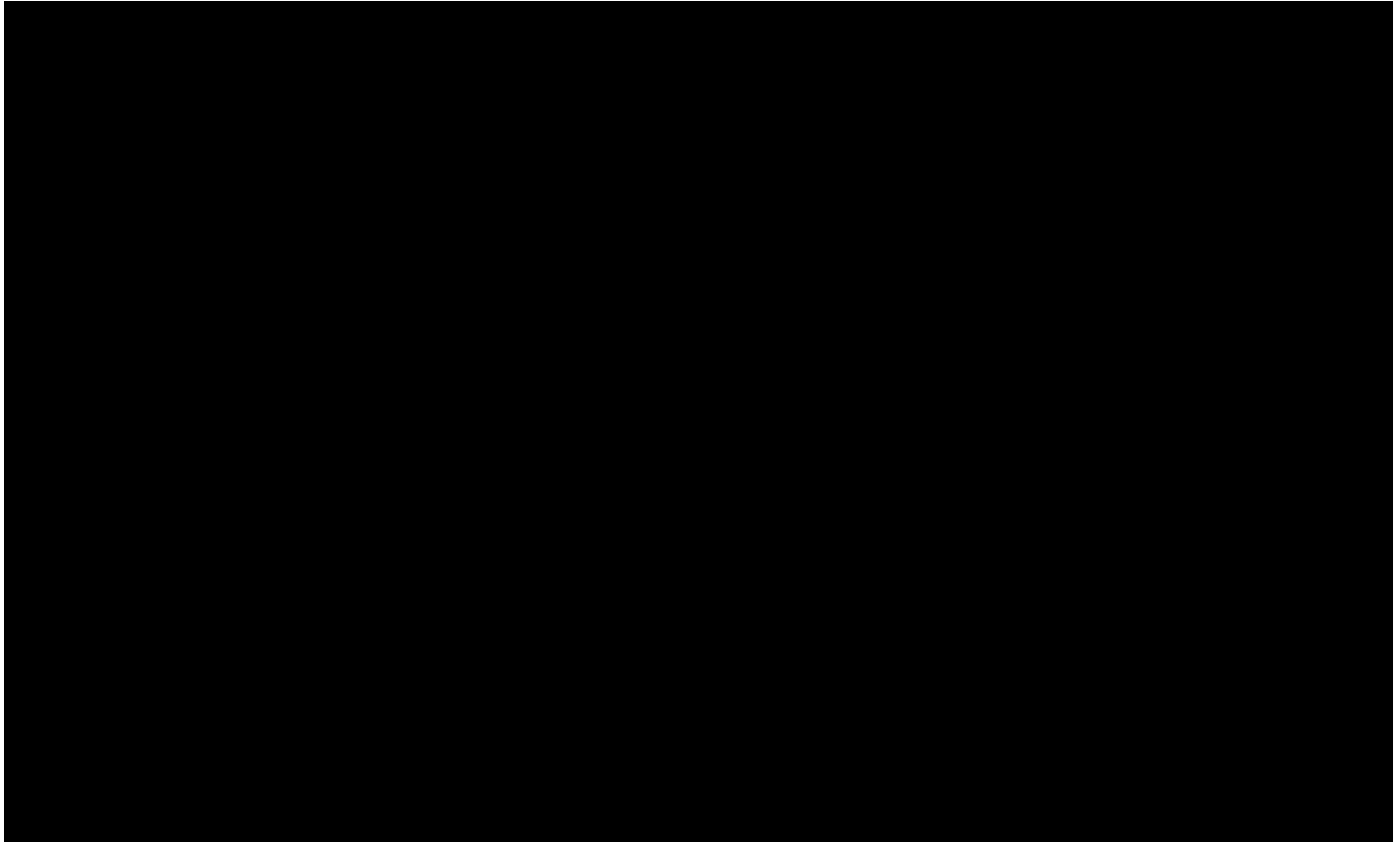




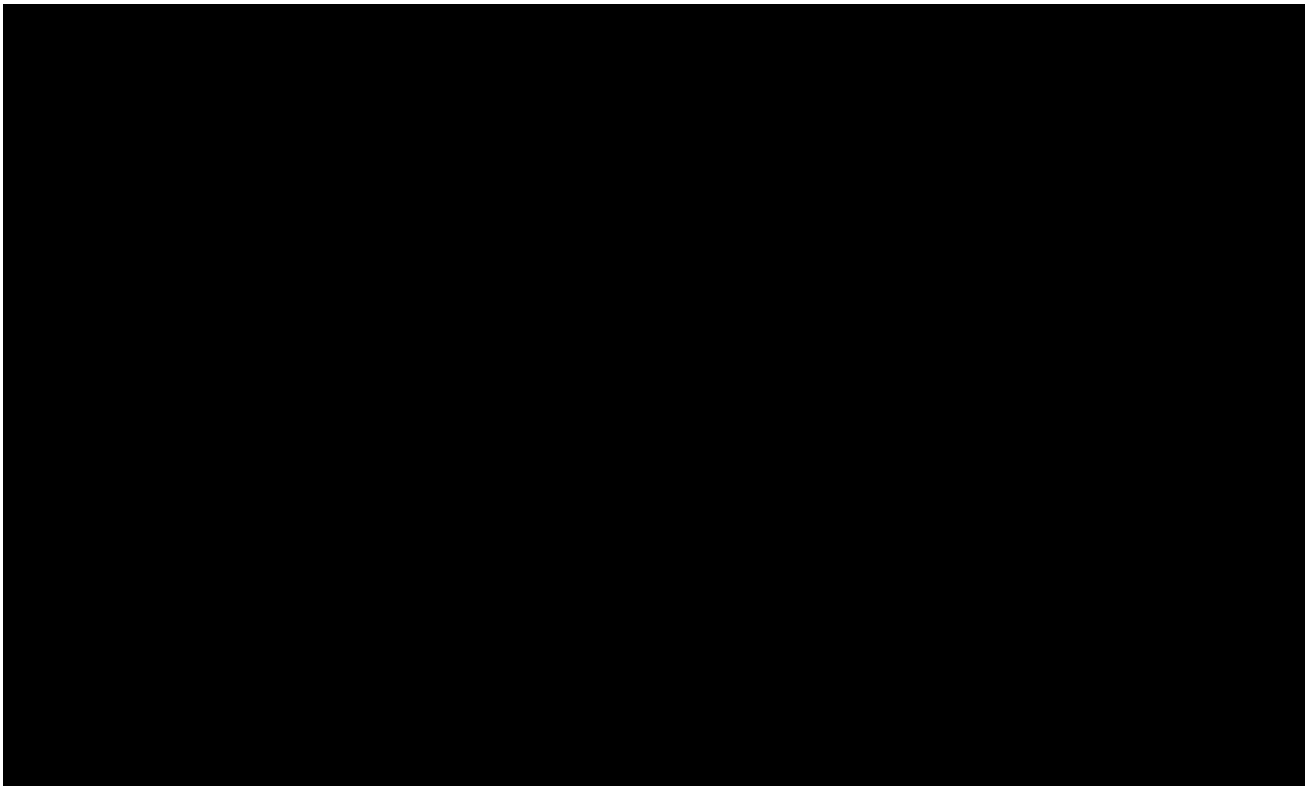


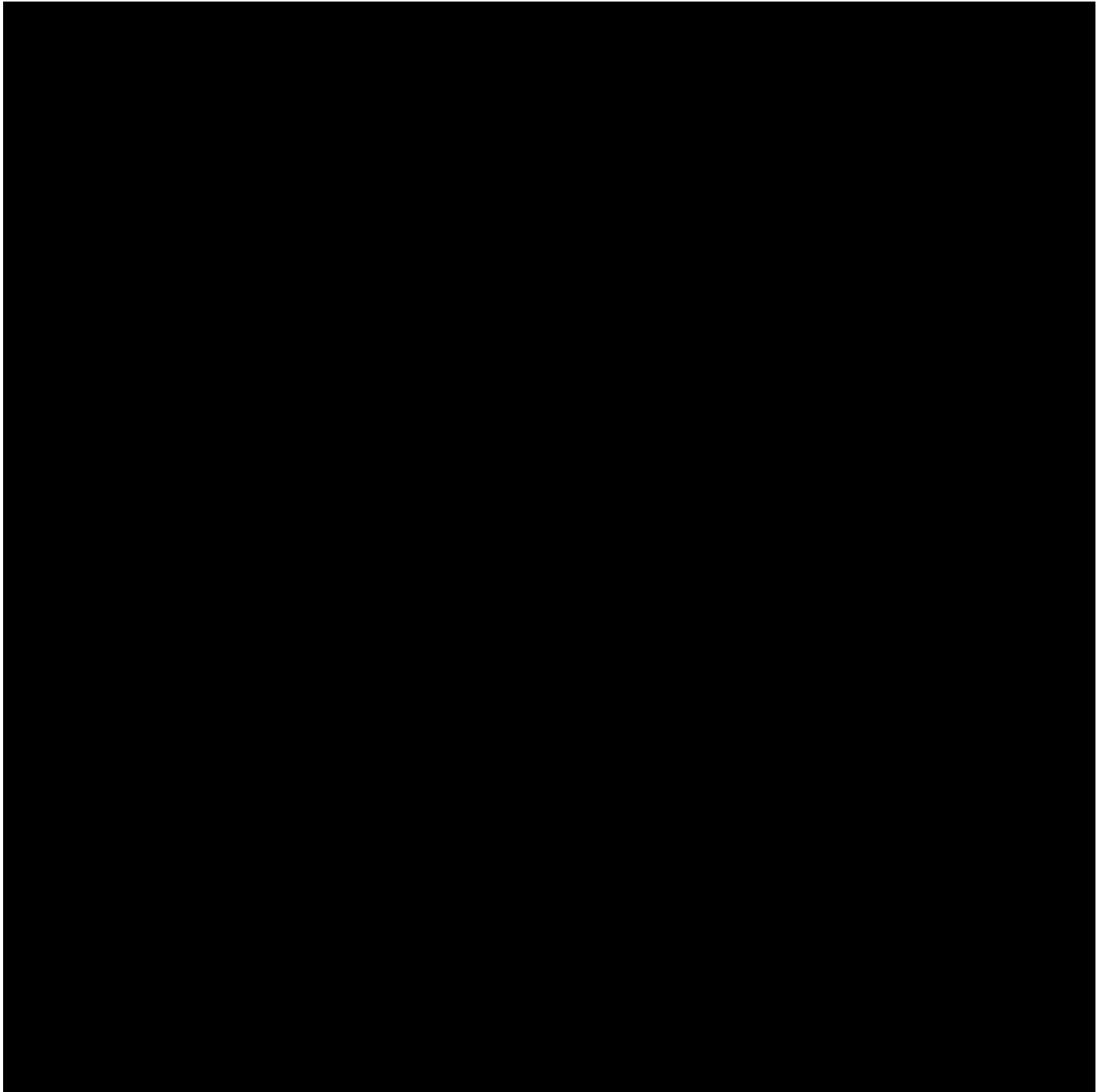


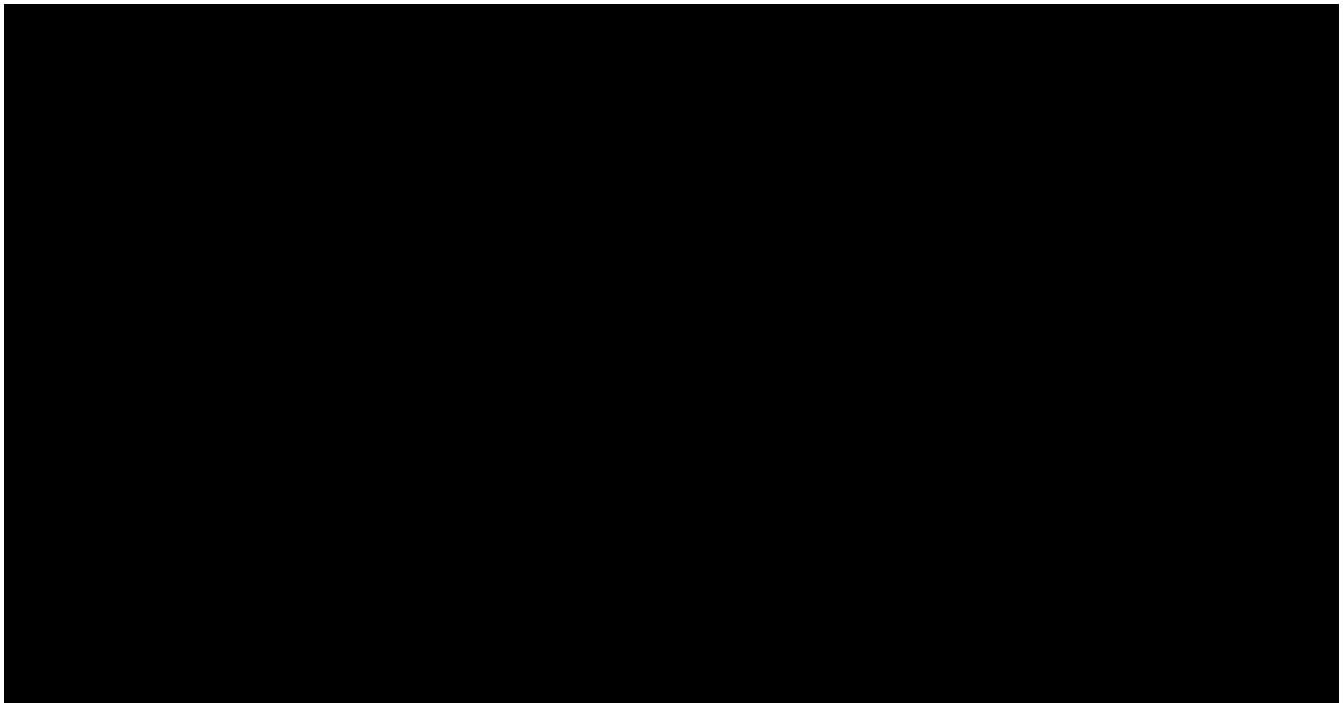
1.4.3.5 Data Access & Reporting Platform (DARe)



1.4.3.6 Retail Network







1.4.3.6.1 Standard Use-Case

The retail network can either sell new passes or cash value loads. Giving the retail network the ability to load pass products may require complex interaction between the clerk and the retail load terminal (e.g. choosing the right agency, selecting the right product and fare category, selecting the right validity dates).

To avoid a complex selection process, other projects, like the HOP system in Portland, only allow cash value loads.

The following is a description of a normal sales procedure:

1. Customer selects a card from the card hanger or brings an already purchased card and passes it to the sales person.
2. The sales person swipes the card (either using the magnetic stripe) or scans it (using a barcode reader) to initiate the sale process.
3. The clerk asks for an amount of stored value to be added to the account and enters this amount into the POS.
4. The POS calculates the transaction amount. If the system detects that the card is new, the cost of the card will be added to the transaction.
5. The customer pays the amount owed.
6. The POS system generates the JSON transaction data for the MOBILEvario Sales API.

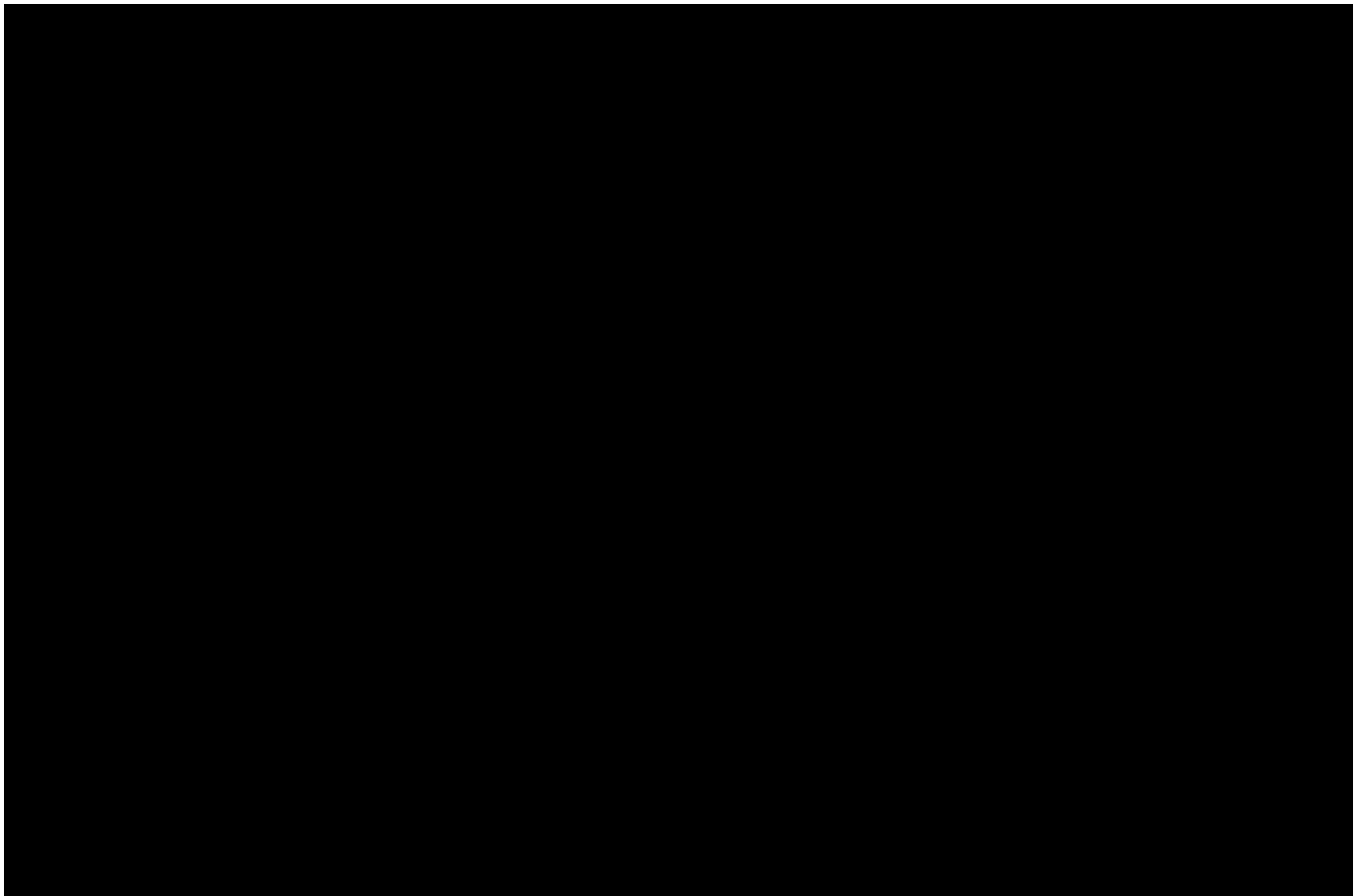
7. The transaction is sent to the MOBILEvario API.

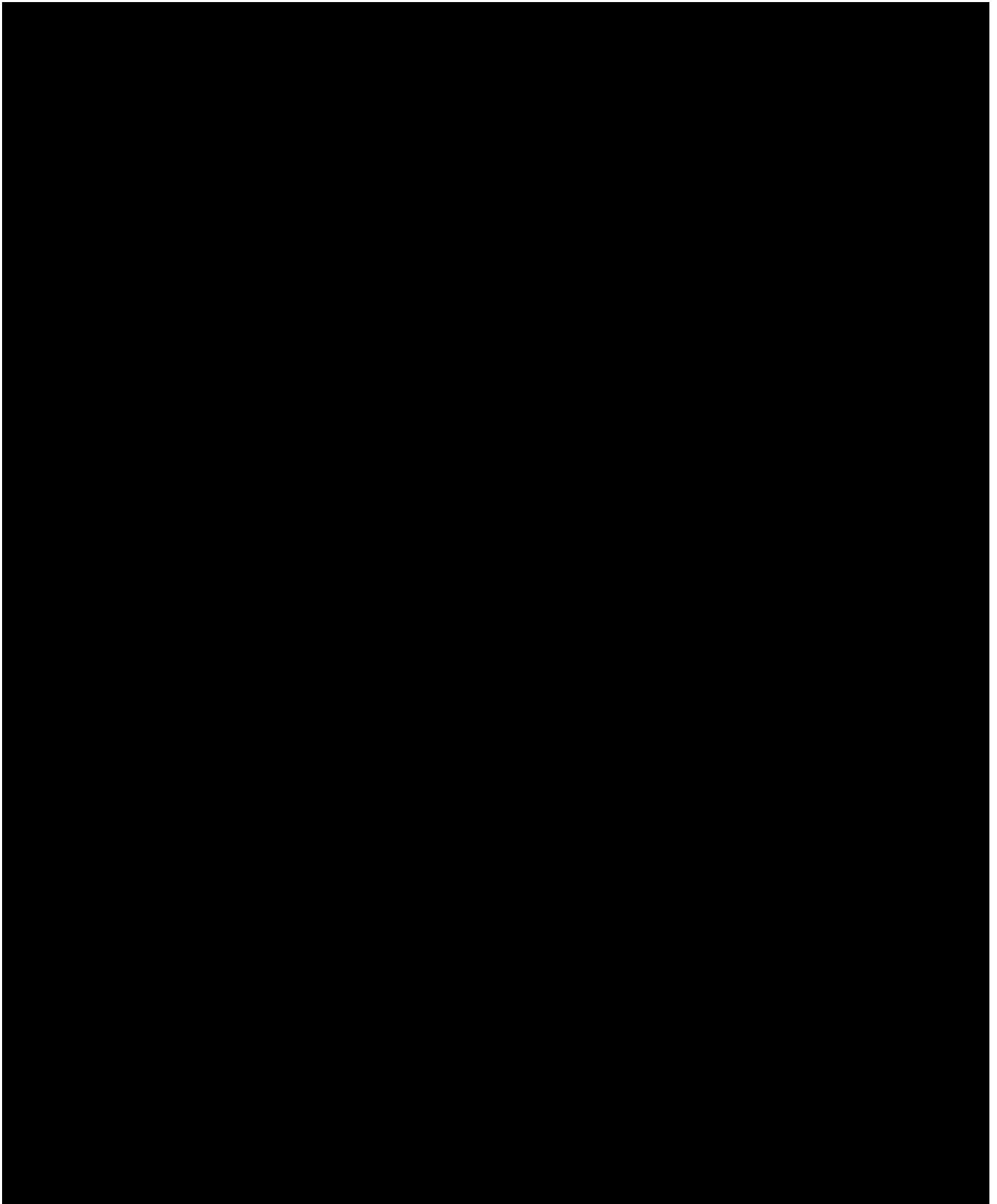
The API supports cancellations and refunds. This is especially important for situations where communication problems between the retail network and the backend exist.

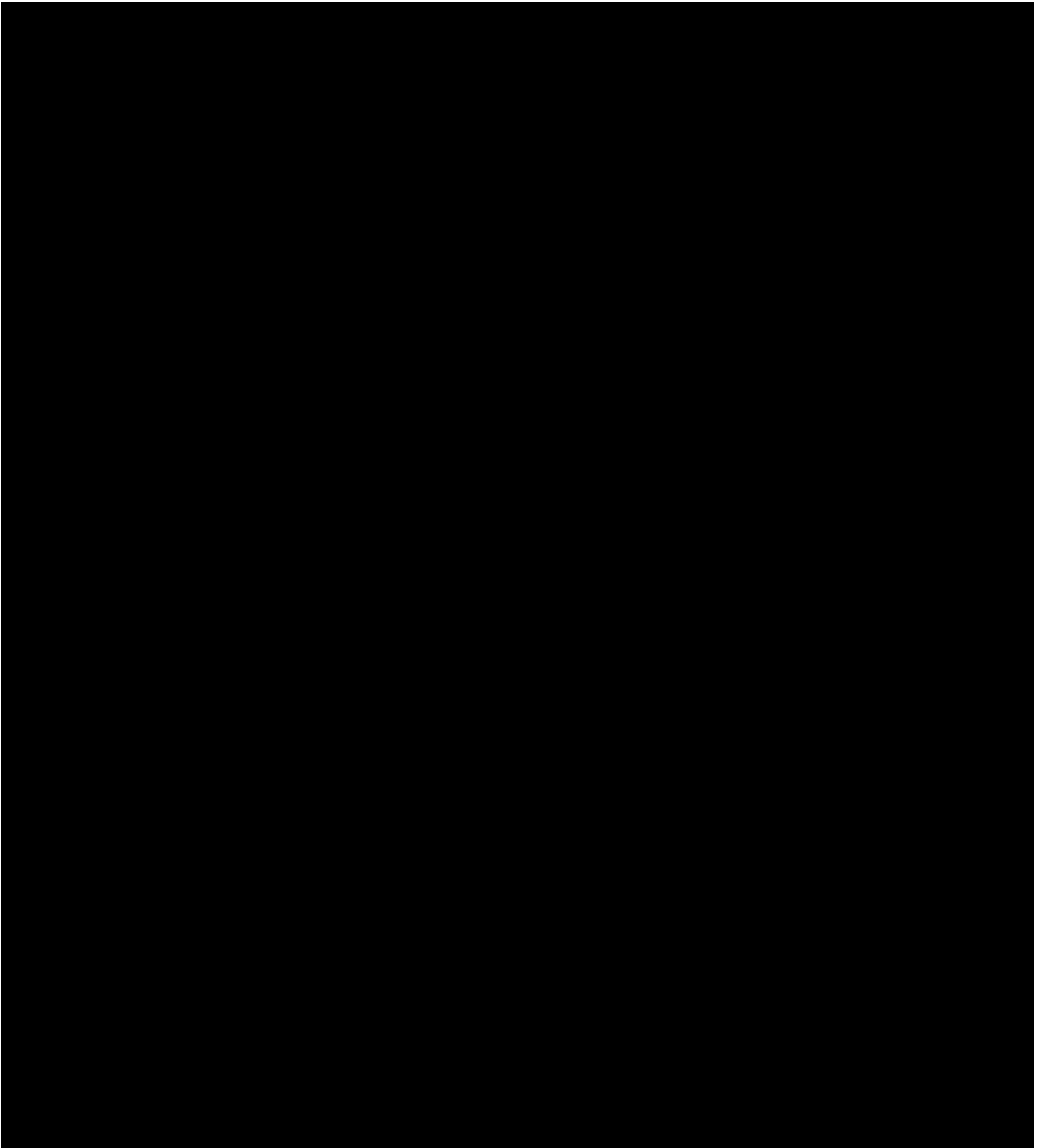
With a cancellation, the sales client can cancel the whole sales transaction shortly after it is executed. For example, if the sales transaction with the API is done before the payment and needs to be cancelled due to failed payment. With the refund transaction, the sales client can refund a transaction made maybe days before and it has finer grade of control on what is being refunded and how the refund is made (cash, credit card etc.). It might be that the customer bought a card, \$25 of stored value and a month pass and want to have refund only on the month pass, maybe day after the sales transaction. Which sales channels can make refunds is in the agencies consideration. For example, the sales network does not normally process refunds.

The Retails Sales Network will have its own sales channel identifier that is submitted in every transaction. Based on this identifier the retail network can be invoiced for the amount loaded to the cards.

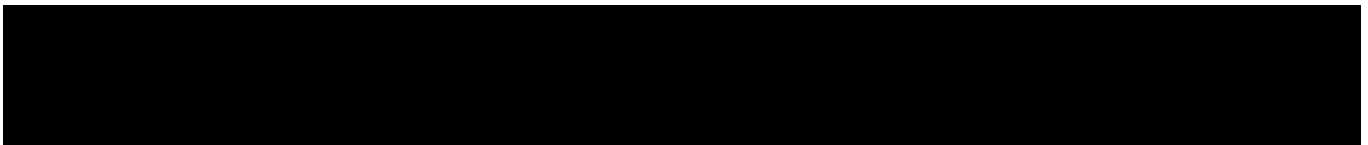
1.4.3.6.2 Retail Network API Example

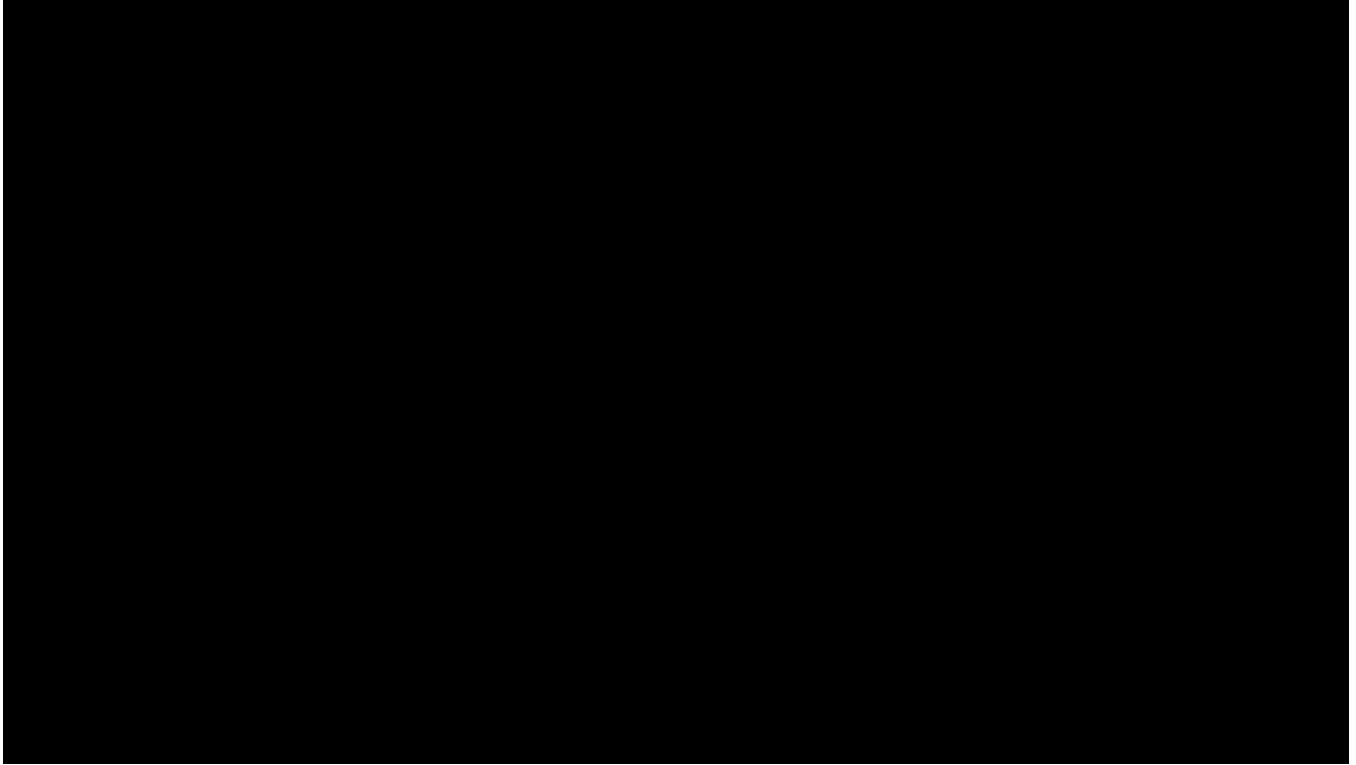




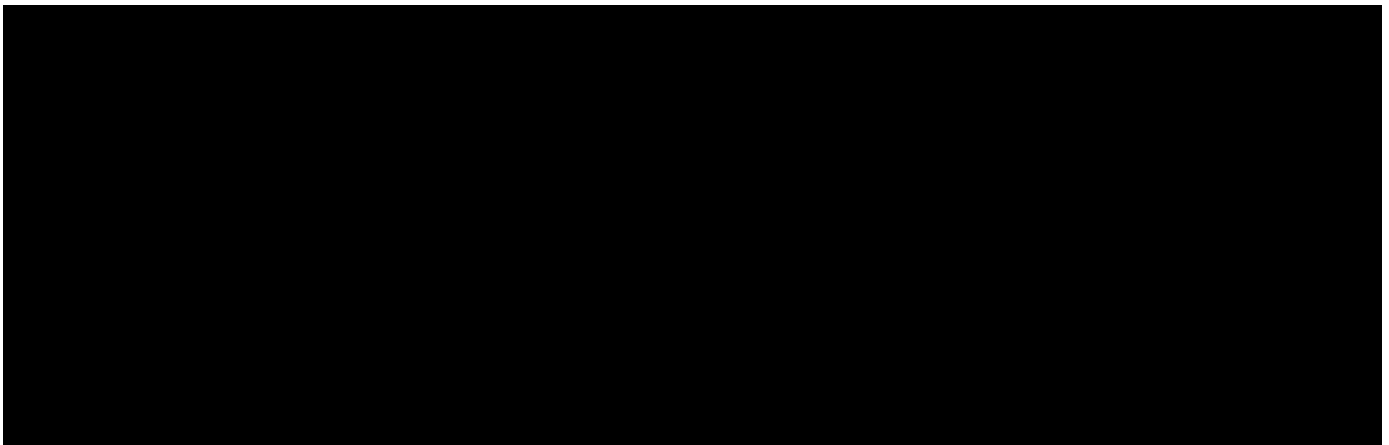


1.4.3.7 Back Office Integration with Existing Solution

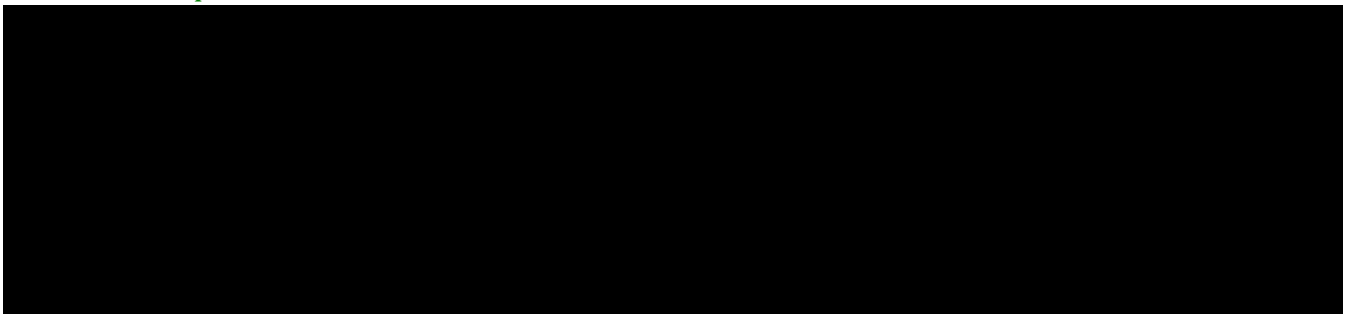




1.4.3.8 ADA Paratransit

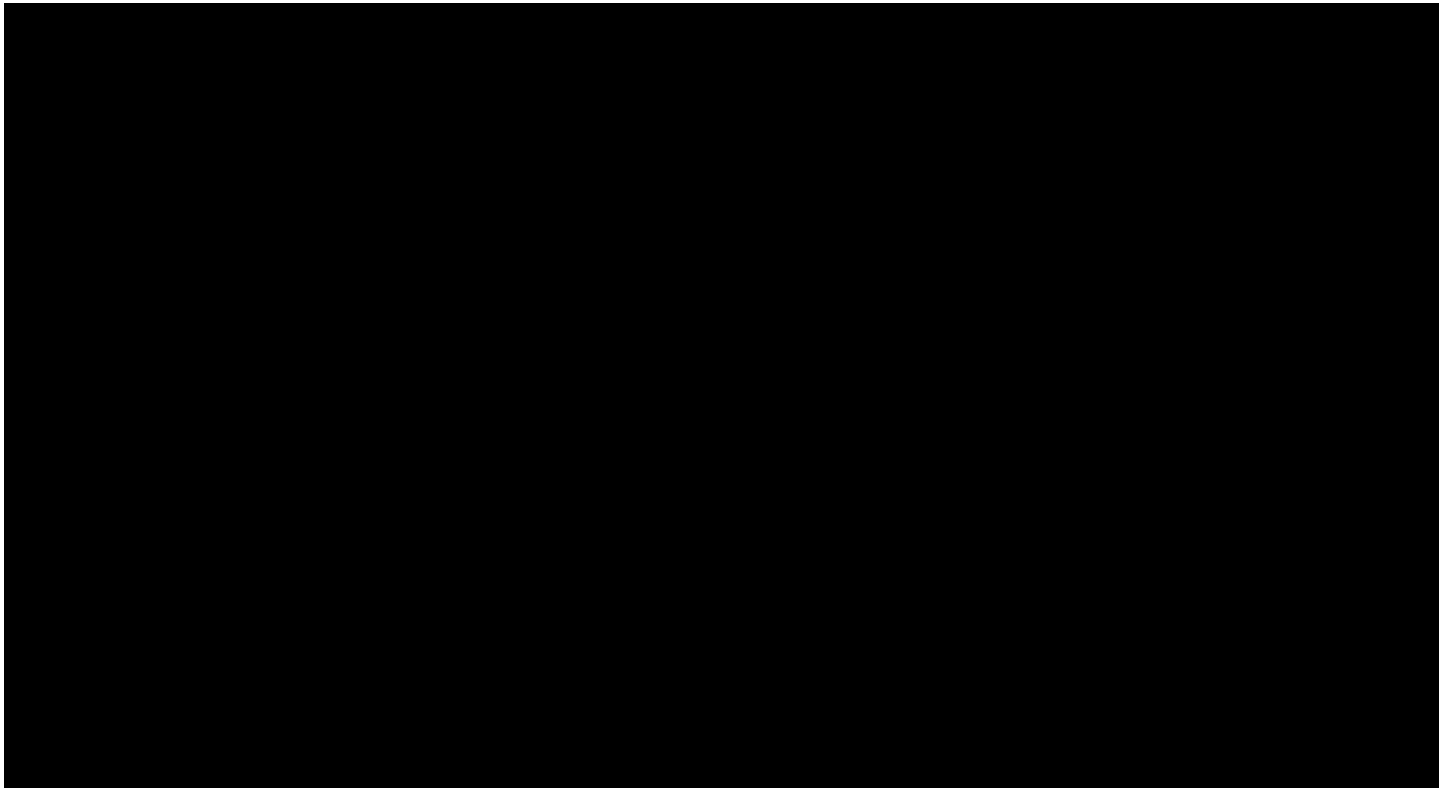


1.4.3.9 Vanpool

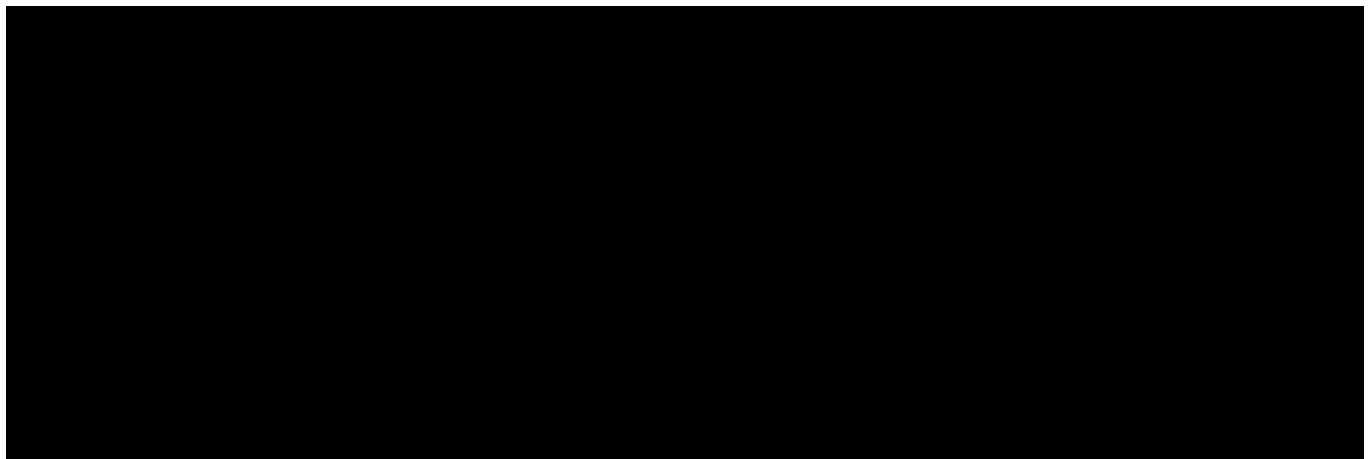




1.4.3.10 Additional Integrations

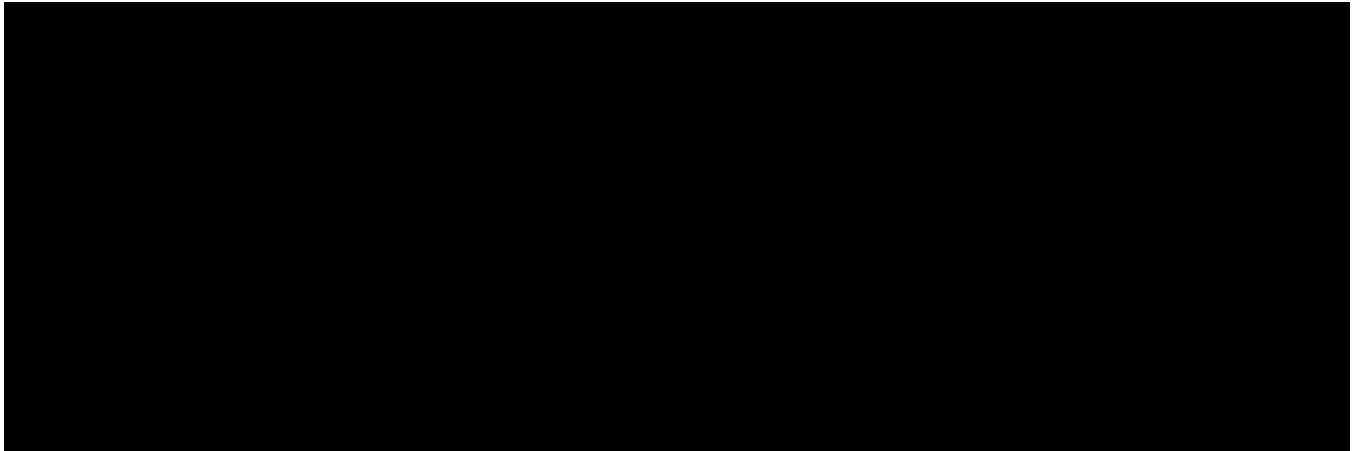


1.5 A Service Proven and Innovative Solution



- e. *Approximate number of years in revenue service.*

1.5.1 INIT's Proposed System conforms to the Scope of Work



1.5.1.1 INIT Meets the ngORCA Required Capabilities

The table below indicates how INIT's proposed solution meets the ORCA Agencies' project goals.

next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Customer Goals	
Ease of use	<p>INIT provides intuitive user-friendly design for ngORCA onboard validators and platform validators. The public and internal websites and applications are developed under common UI/UX guidelines and principles ensuring user adoption. High volume applications are deployed through web-browsers for improved consumption and adoption.</p> <p>Agency employees also enjoy the ease of use of familiar web-based and client-server based, point-and click administration tools for back office administration, tariff management, and reporting. INIT administration tools provide the highest levels of configuration flexibility.</p> <p>A UI/UX consultant will assist INIT and the ORCA agencies in ensuring common design principles will support system adoption and use.</p>
Convenience	<p>INIT provides multiple channels to load and manage accounts – including websites, mobile websites, Vending Machines (VMs), call-center functionality, and customer service terminals (CSTs). INIT provides this capability with a service-proven, real-time account-based system so that customers can use their cards immediately after loading. <i>To enhance customer convenience INIT is offering its service-proven open-payments solutions in Phase I.</i></p> <p>The INIT solution supports real-time transactions and real-time fare calculation for quick and accurate transaction time.</p> <p>The INIT solution supports offline transactions which ensure continuous boarding even in the event of back office systems being offline or during cellular service interruption.</p>

next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Equitability	Equitability is supported through cash-enabled vending machines, gift cards available through retail outlets and through innovative fare capping technology. Fare capping allows agencies to guarantee a fixed maximum price for varying terms including daily, weekly or monthly limits.
Existing relationships	INIT's website will provide an easy to use, full-featured administration tool for companies, universities, and social service agencies.
Seamless transition for customers	INIT will implement the ORCA Agencies' innovative transition strategy which utilizes the intermediary DARE database to minimize customer impact. <i>INIT will advance the Phase 5 and 6 transition schedules via resource loading to minimize the period of side-by-side legacy and ngORCA field devices which involves the most customer impact with customers potentially not receiving the most up to date account information.</i>
Open customer communication	INIT enables effective customer communication through powerful content management systems for customer information channels – such as, websites, VMs, etc.
Technology Goals	
Open architecture	Since the inception of its Automated Fare Collection (AFC) system, INIT has utilized an open architecture with extensive use of Application Programming Interfaces (APIs) which allow ease of interfacing between different system components – including third-party components.
Modular design	INIT's System highly modular design allows for the use and interchangeability of third-party Commercial-off-the-Shelf (COTS) solutions. This is supported by INIT's open API architecture and Azure API Management gateway.

next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Real-time communications	INIT provides a proven real-time solution which enables customer transactions to occur within milliseconds – customer can use their cards or smartphone “virtual cards” immediately after loading fare products or value onto their transit accounts. The robust solution allows for low risk offline operations with local approvals and store and forward capability.
High availability	INIT utilizes an active-active, load-balanced geographically redundant dual-site Infrastructure as a Service (IaaS) solution at Level 4 data centers to provide disaster avoidance and an extremely high availability hardware and software solution. Additional offsite, out-of-region data backups ensure resilience from generally rare, but increasingly prevalent regional disasters.
Compliance with security standards	INIT has recently deployed multiple Automated Fare Collection (AFC) systems which are certified PCI compliant. INIT's security strategy involves industry best practices including, tokenization and cryptography. Additional IT security best practices such as log management, flow monitoring, file integrity management, endpoint protection and intrusion detection systems are used to protect the production environment. The Oracle Enterprise database is fully encrypted at the table level.
Minimize transition-only software	INIT's solution, based on the ORCA Agencies innovative transition plan, involves very minimal transition-only software. Although INIT will develop an interface to the DARE for information exchange with the Legacy ORCA, this interface will also be utilized for reporting of long-term data.
API integration	Since the inception of its Automated Fare Collection (AFC) system, INIT has leveraged the use of APIs to realize an open architecture platform. This use of APIs to integrate different applications and devices enables the easy use of best-of-breed third-party COTS solutions.

next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Scalability	INIT's use of an Infrastructure as a Service (IaaS) solution allows for easy scalability as ngORCA expands agencies, modes, usage, and customers.
Cost	
Minimize dependencies on a single vendor	INIT's open architecture solution will allow for easy integration of different third-party COTS applications resulting in a higher-level of multi-supplier environment, increasing competition and reducing costs.
Manage and minimize risk to cost and schedule	INIT's use of a service-proven solution, extensive experience in the implementation of Automated Fare Collection systems and integrating to INIT CAD/AVL onboard equipment on the vast majority of the vehicles will significantly minimize risk to the program cost and schedule.
Lower Total Cost of Ownership (TCO)	The INIT solution lowers the TCO through the use of a service-proven platform (which minimizes development costs), an open architecture system (which increases competition), an INIT to INIT onboard system (minimizing complex, costly integration), and a Seattle office to provide deployment and ongoing support locally.
Agency Needs	
Preserve operating revenues	During the transition, integration with the DARE will protect data and operating information and therefore protect operating revenue. After transition, a robust financial management application and advanced multi-agency revenue distribution function will ensure accurate revenue reconciliation.
Revenue distribution	INIT brings an extensive track record in implementing multi-agency Automated Fare Collection systems with successful and accurate revenue distribution.

next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Access to information	INIT employs a browser-based standard reporting application, VASAwab which provides easy access to standard reports. Further information is available in web-based systems management dashboards from MOBILEsymon, JIRA Service Desk, Riada Insight, and MOBILEGuard.
Increase ORCA usage and market penetration	<p>INIT appreciates the business advantages of increasing usage and penetration, and will act as a partner and support the ORCA Agencies to advance this goal from a technology, business and operations perspective. <i>As indicated above, INIT proposes to advance the use of its open payments solution from Phase 2 to Phase 1 which should assist in increased use of ORCA.</i></p> <p>The high performing transactional system combined with the user-friendly and well-designed website will encourage increased adoption and market penetration. The use of fare capping within the INIT platform will increase good will amongst riders by being able to ensure a guaranteed best fare.</p>
Operational efficiency	INIT incorporates extensive experience in the transit industry and will deploy its operations-centric solution to optimize System operations, administration and maintenance. With a COTS-based solution and a very strong subcontractor partner team, the INIT team will be able to roll-out new functionality and upgrades faster. Given the separate test platform, INIT's existing remote field device software update capability, and the configuration and change management application, the INIT solution will facilitate the ORCA Agencies to quickly assess and pilot new technology features and implement them efficiently. INIT's open architecture and extensive use of APIs will enable successful integration and operation with legacy and third party systems.
Work within the limited space available	INIT appreciates the space constraints on transit vehicles and has integrated with all major onboard transit equipment providers in a wide variety of locations including busses, LRV, streetcar, ferry, stations, garages and offices.











next generation ORCA Goals / Required Capabilities	How INIT Meets Required Capabilities To Realize ORCA Agencies' Project Goals
Scalable to agencies of varying sizes	INIT's system is very scalable and has been successfully implemented for multi-agency platforms with agencies ranging in size from several hundred vehicles to several thousand vehicles.

1.5.1.2 INIT's Service Proven Automated Fare Collection System

The table below shows how the proposed INIT system is service-proven – indicating that all the system components and devices have been deployed in other systems previously.

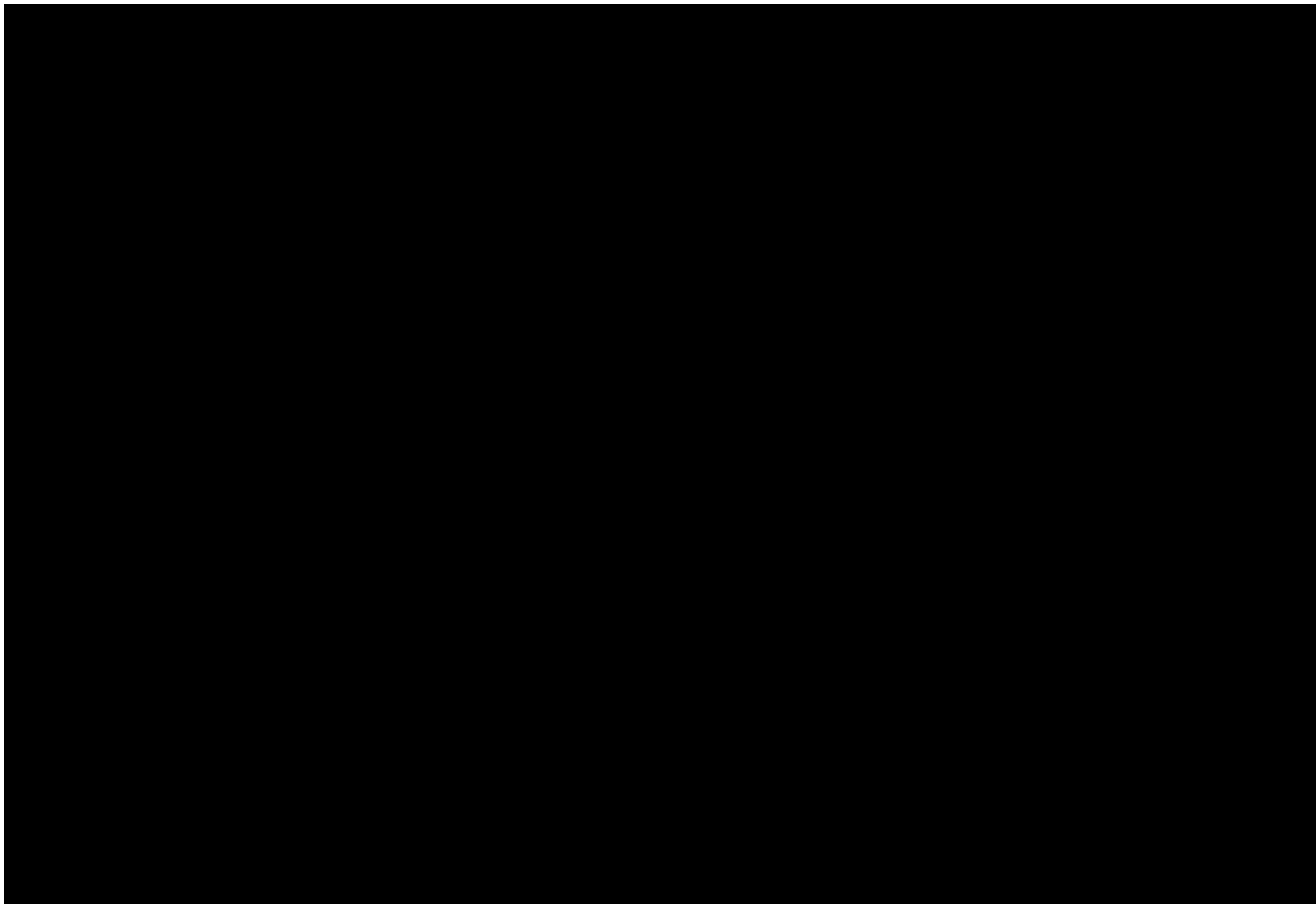
INIT's Service-proven Automated Fare Collection System

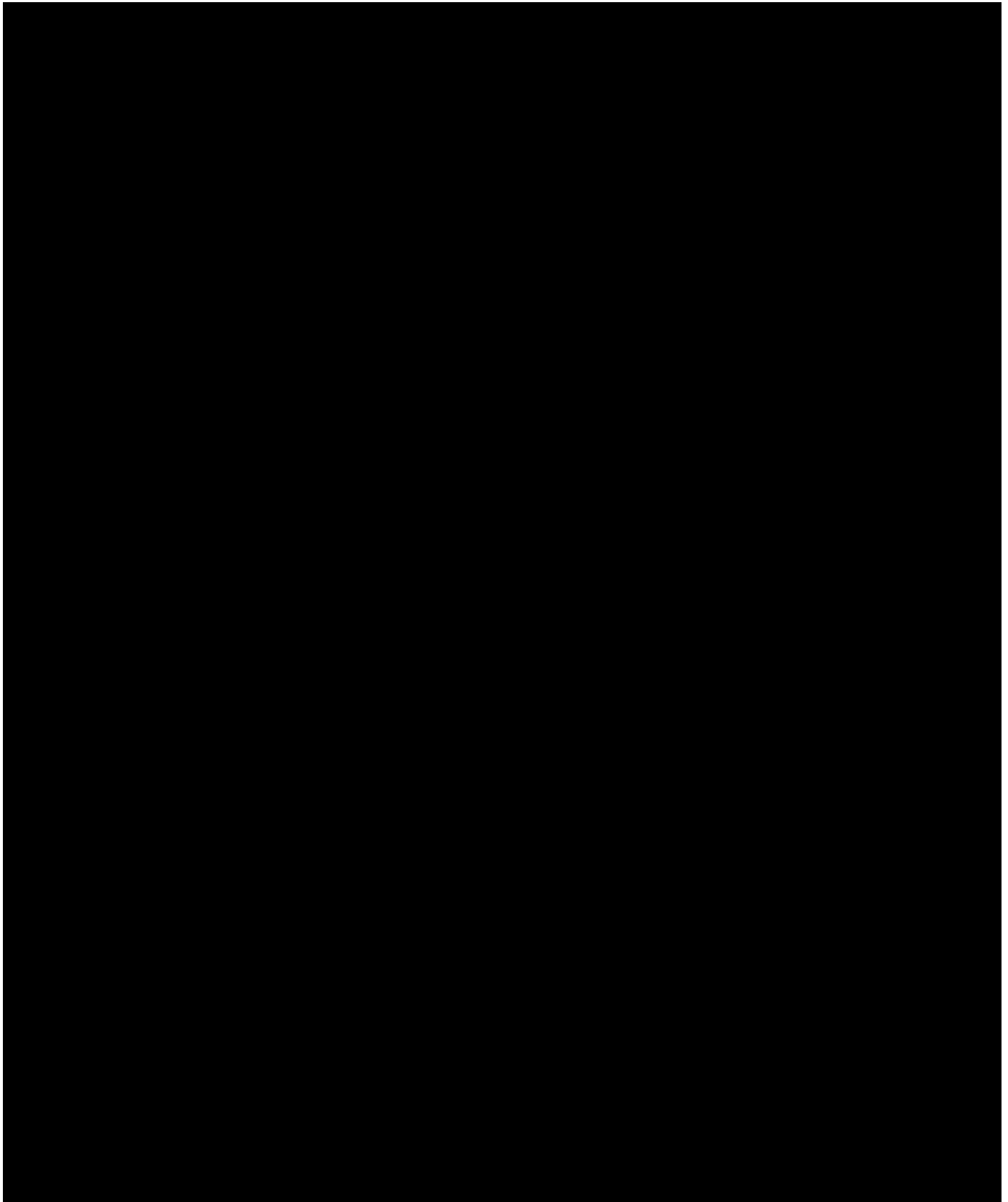
Agency	In-Service Date	ngORCA Proposed Back Office	ngORCA Proposed Wayside & Onboard Validators	ngORCA Proposed VMs	ngORCA Level Reliability, Accuracy, Availability
Portland, Oregon	Jun. 2017				
Turku, Finland	2016				
Sacramento, CA	Jul. 2017				
Tampa, FL	Pilot Q2 2017				
Luxembourg					
Bremen, Germany					
Grand Rapids, MI	Pilot Q3 2017				
Honolulu, HI	Pilot Q1 2018				

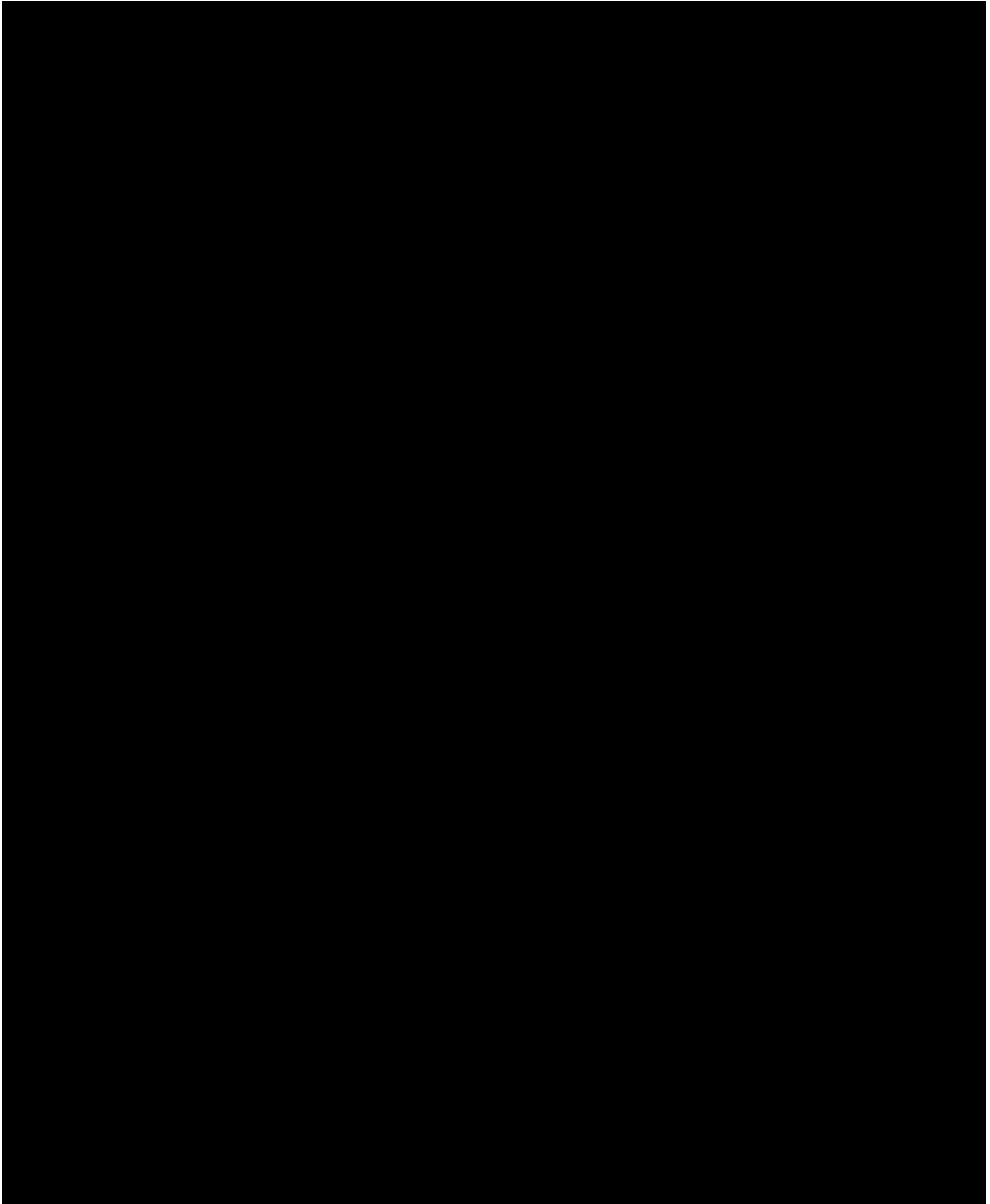
Agency	In-Service Date	ngORCA Proposed Back Office	ngORCA Proposed Wayside & Onboard Validators	ngORCA Proposed VMs	ngORCA Level Reliability, Accuracy, Availability
Orange County, CA	Pilot Q4 2017				
Metrolink SCCA – Los Angeles*	Pilot Q4 2019				
MTA Nashville, CA*	Pilot Q4 2019				

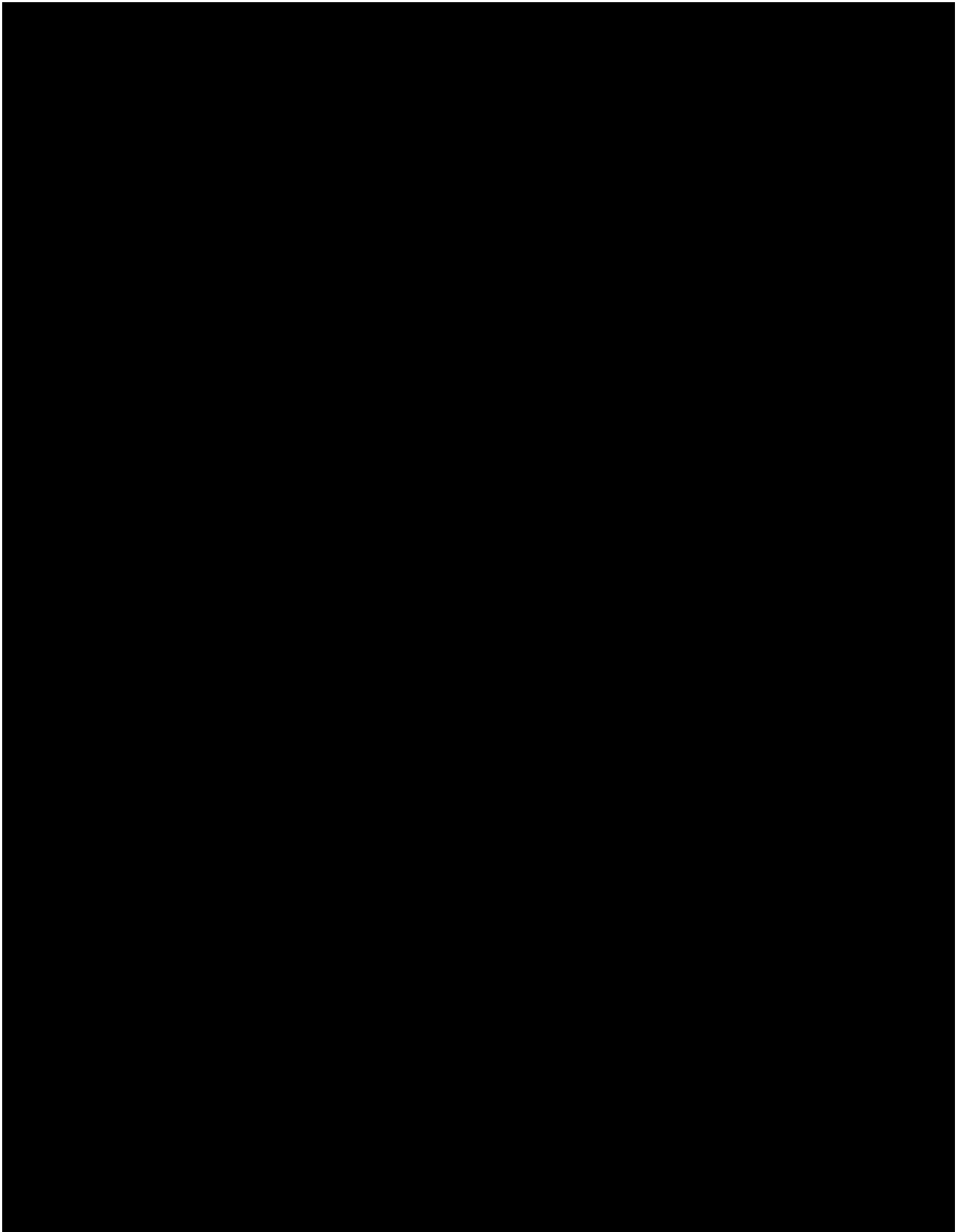
* Projects recently awarded but not yet contracted.

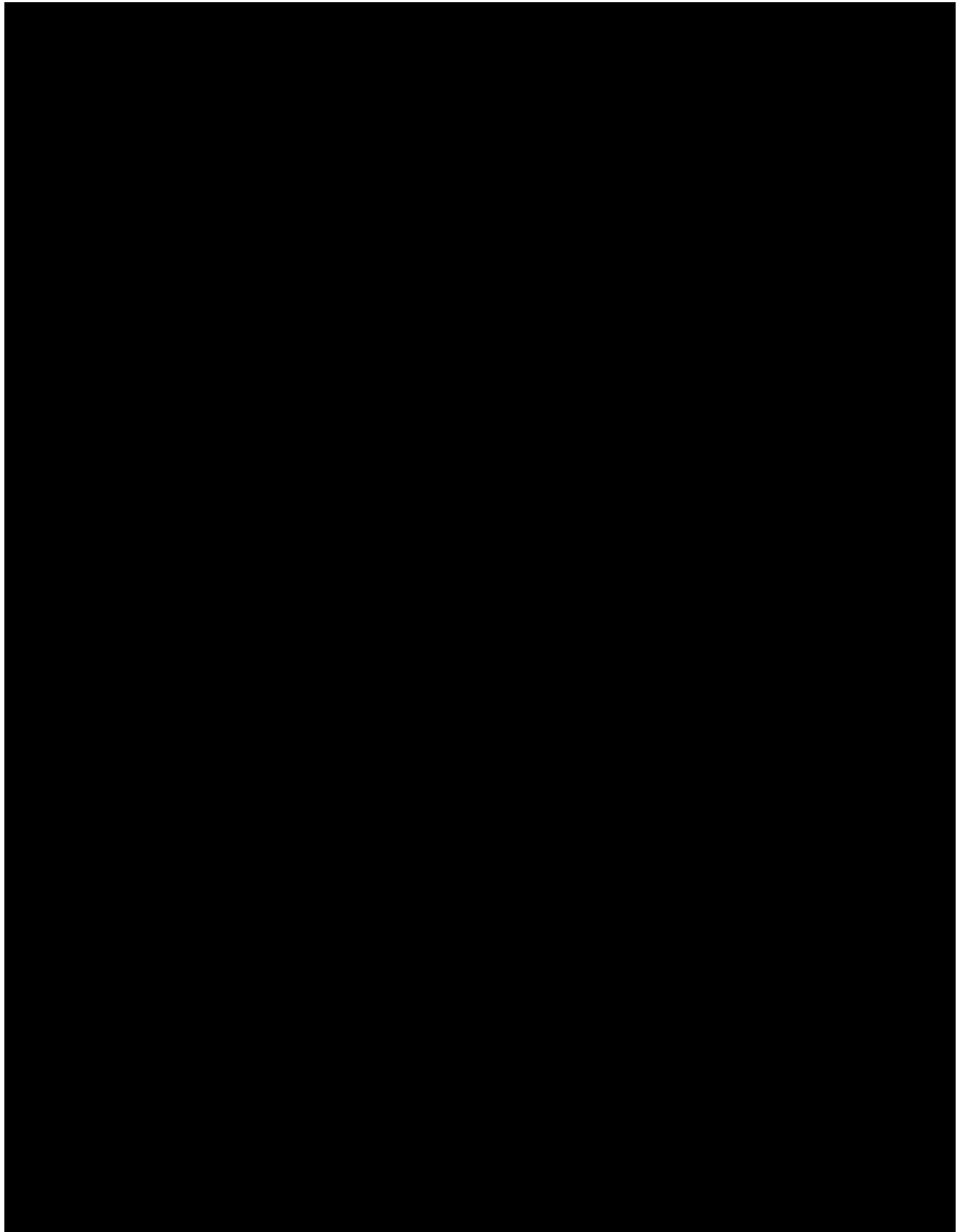
1.5.1.3 A Balance of Service-Proven, COTS, and Innovative Modular System Design



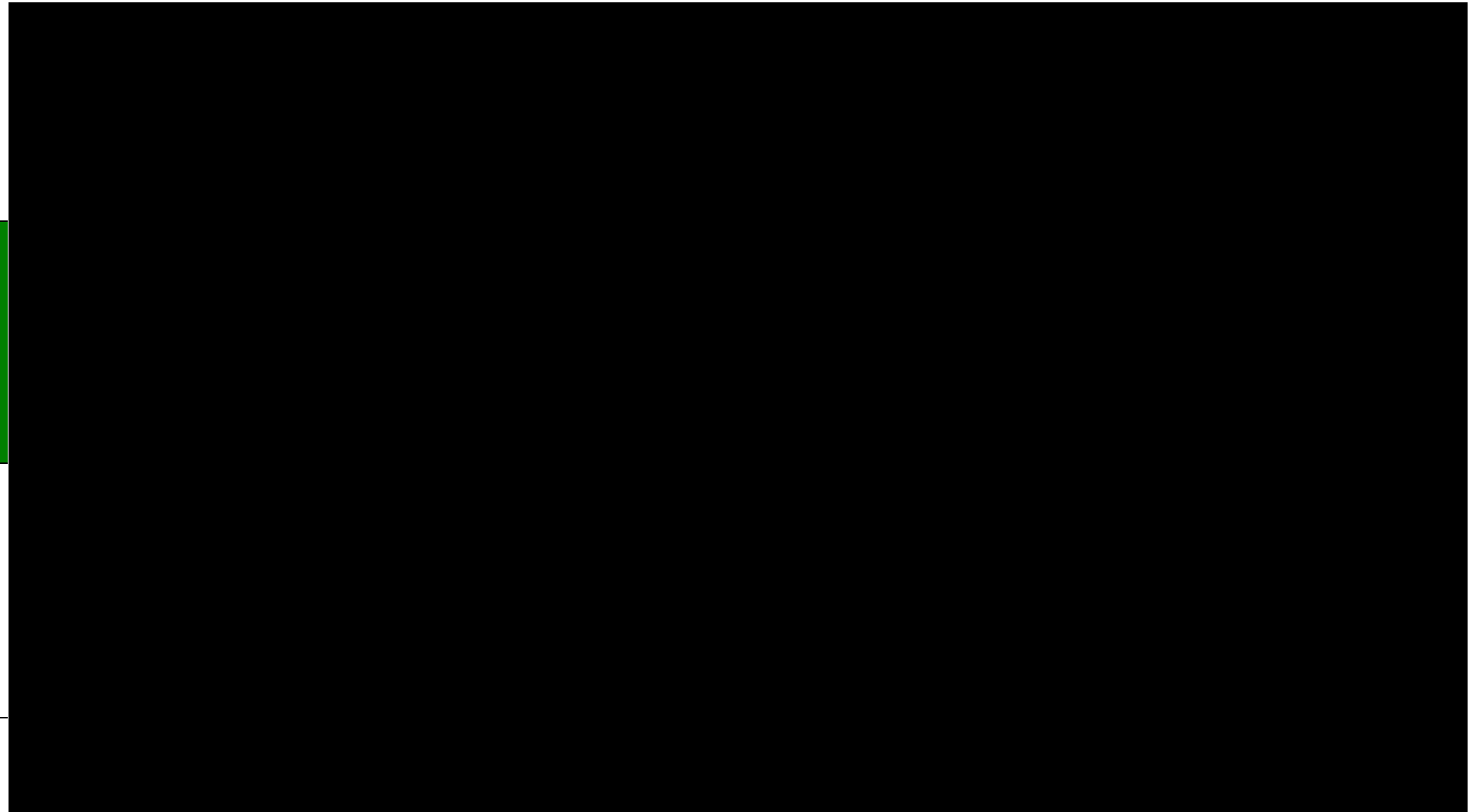


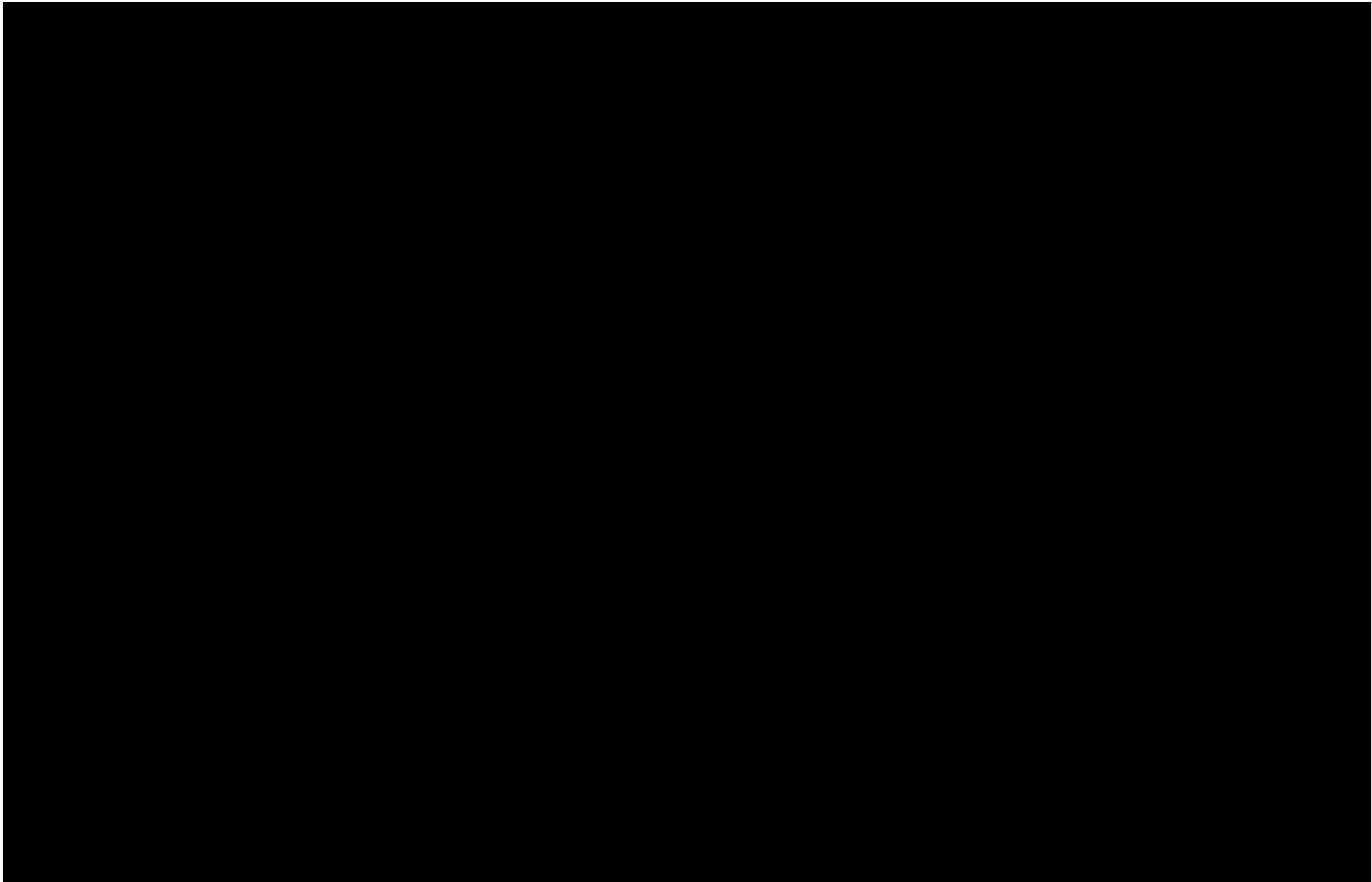


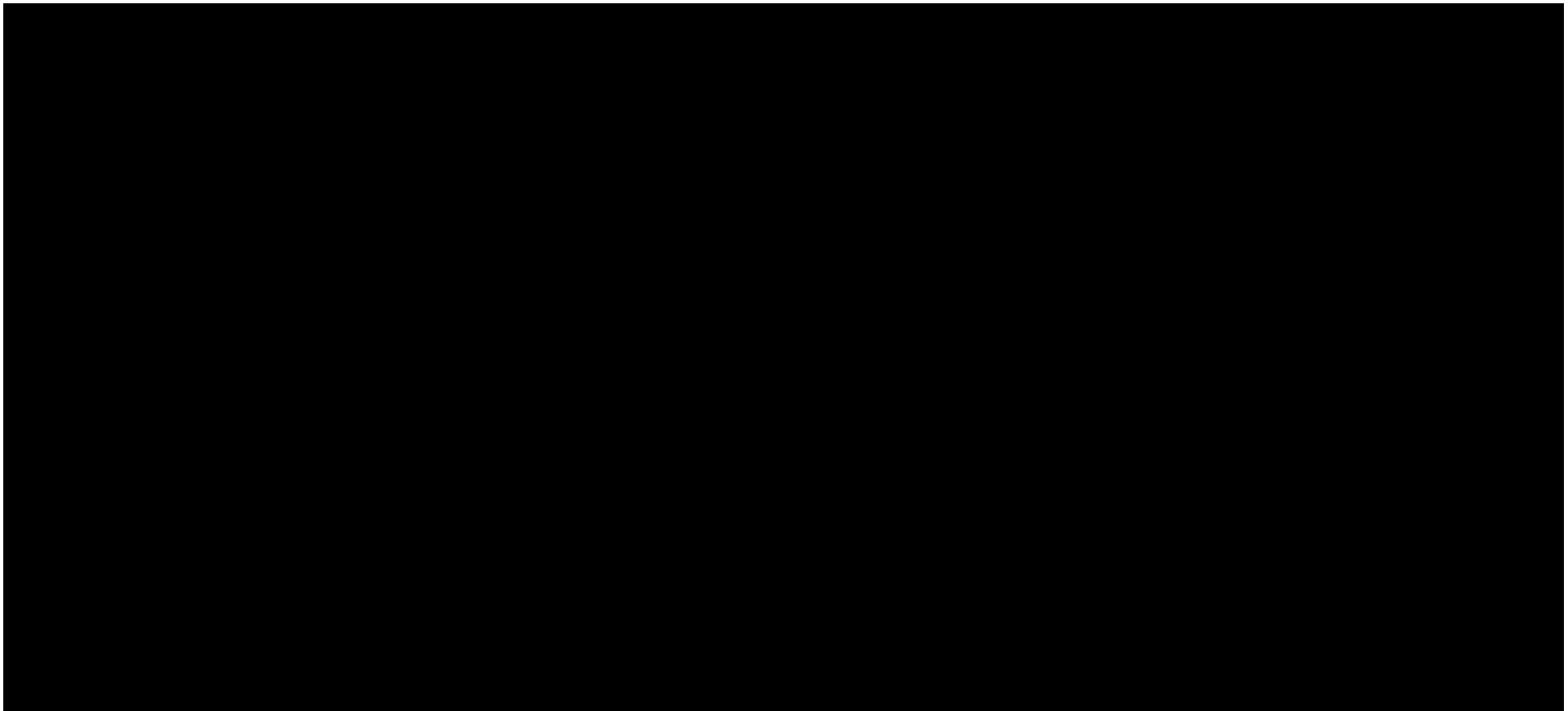


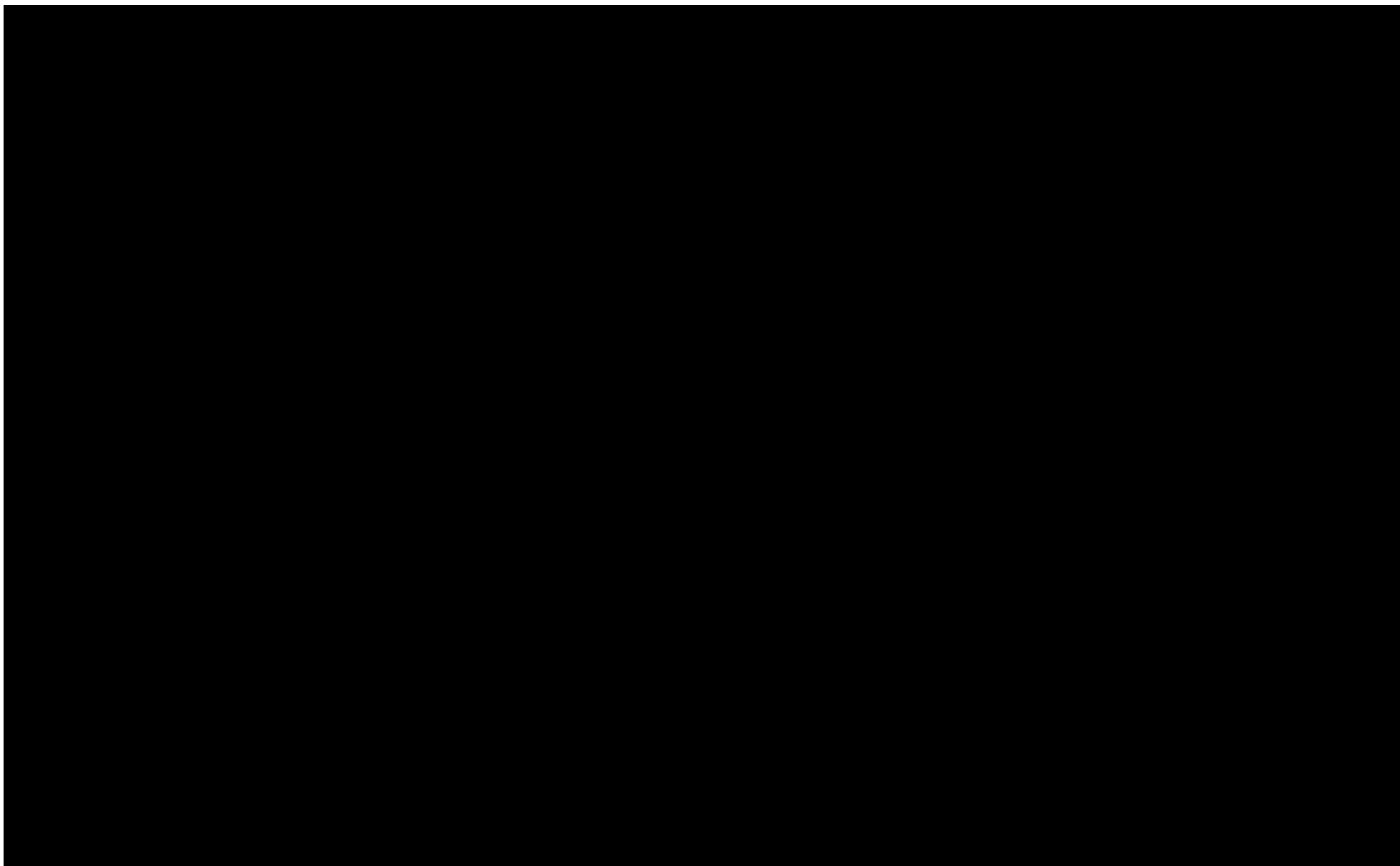


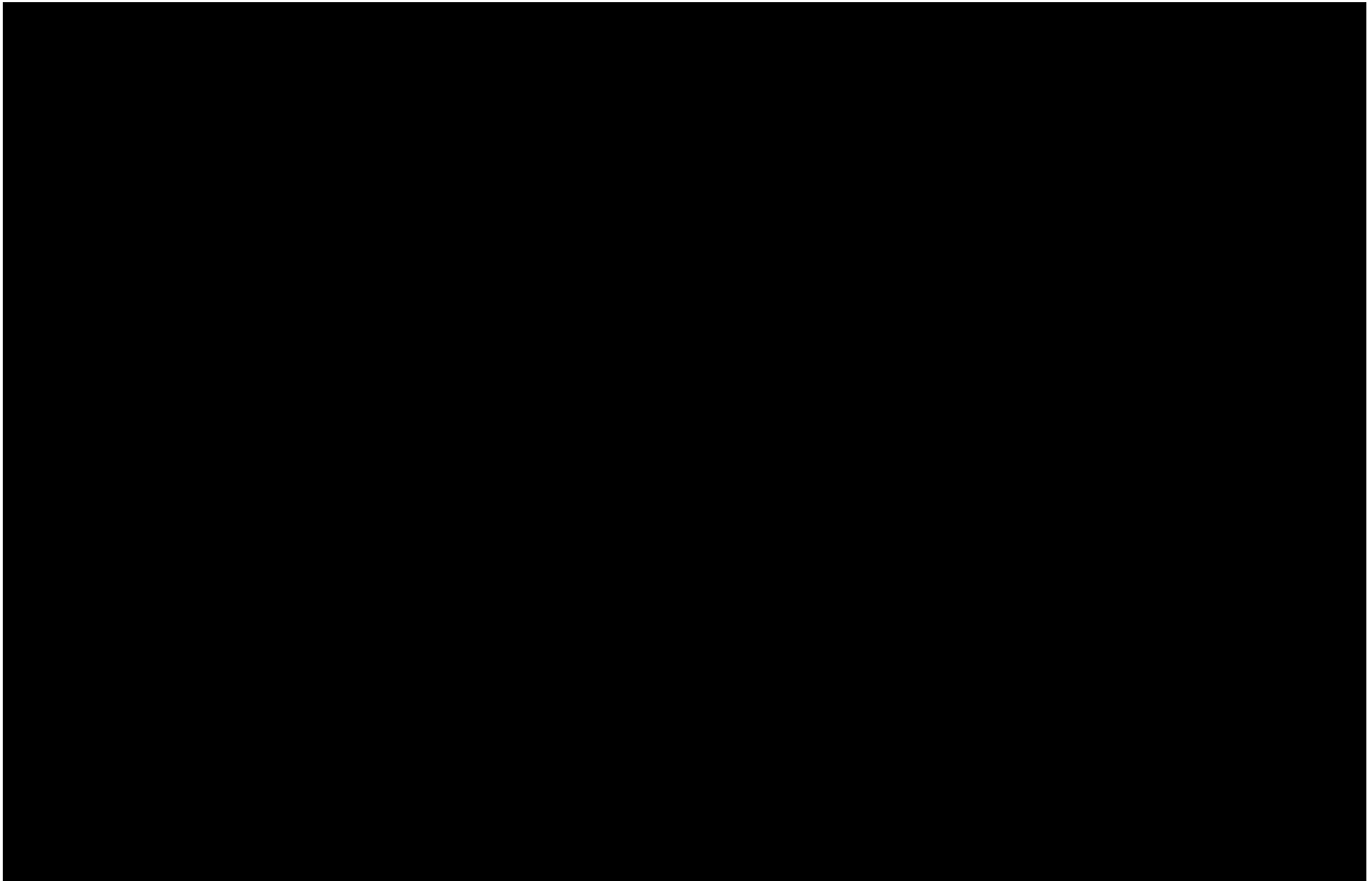
1.5.1.4 Service-Proven Devices and Modules

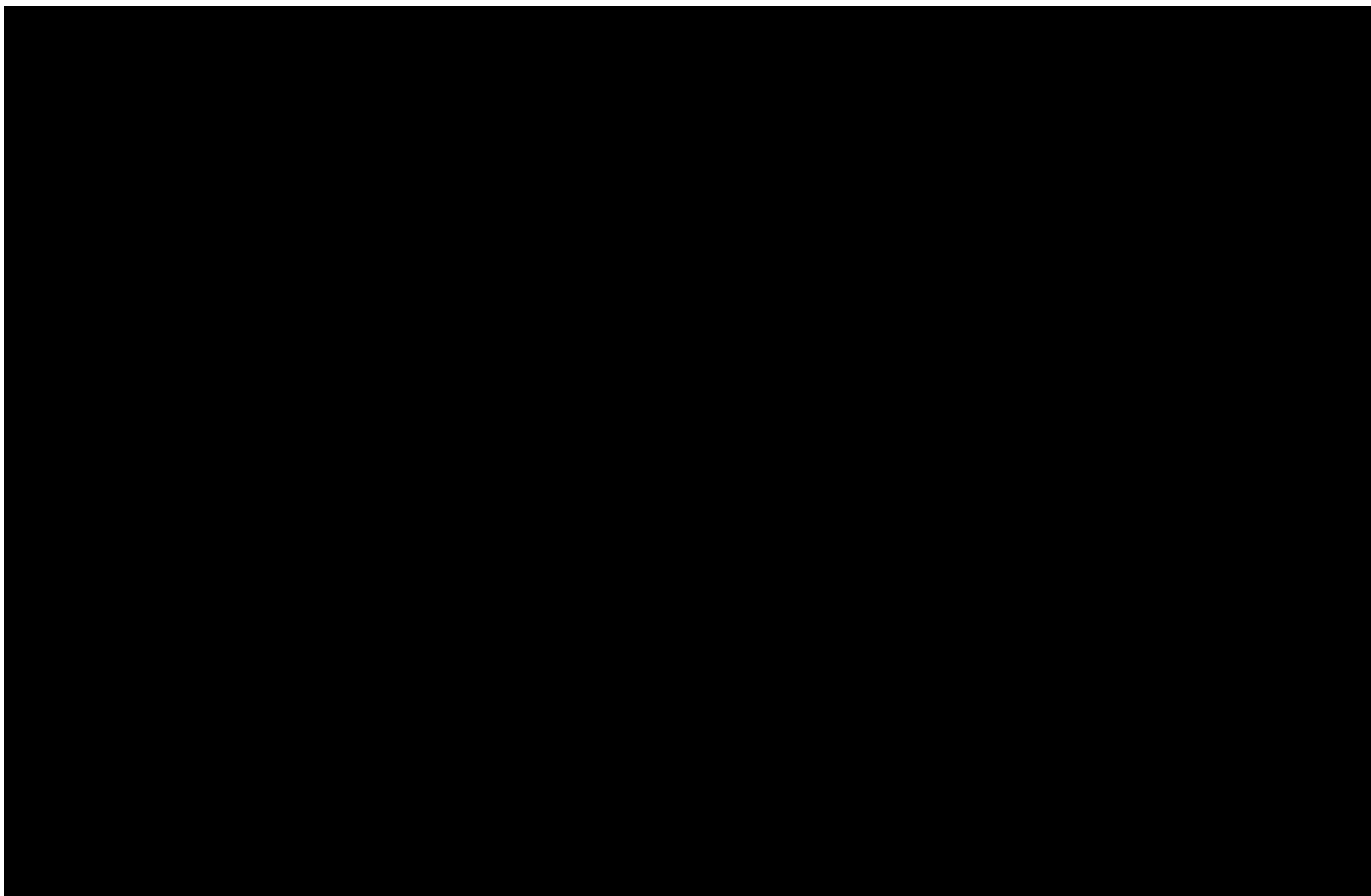


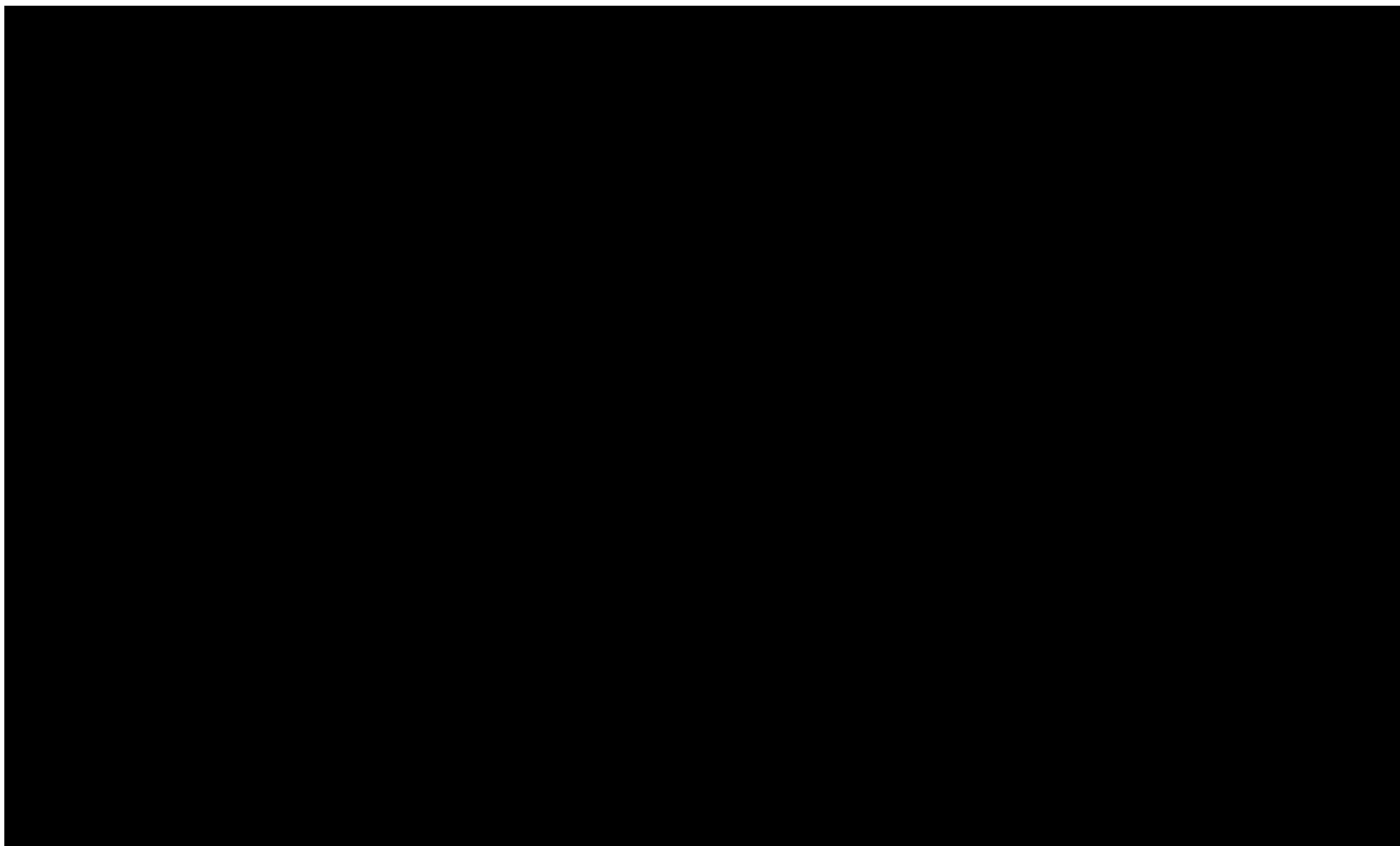


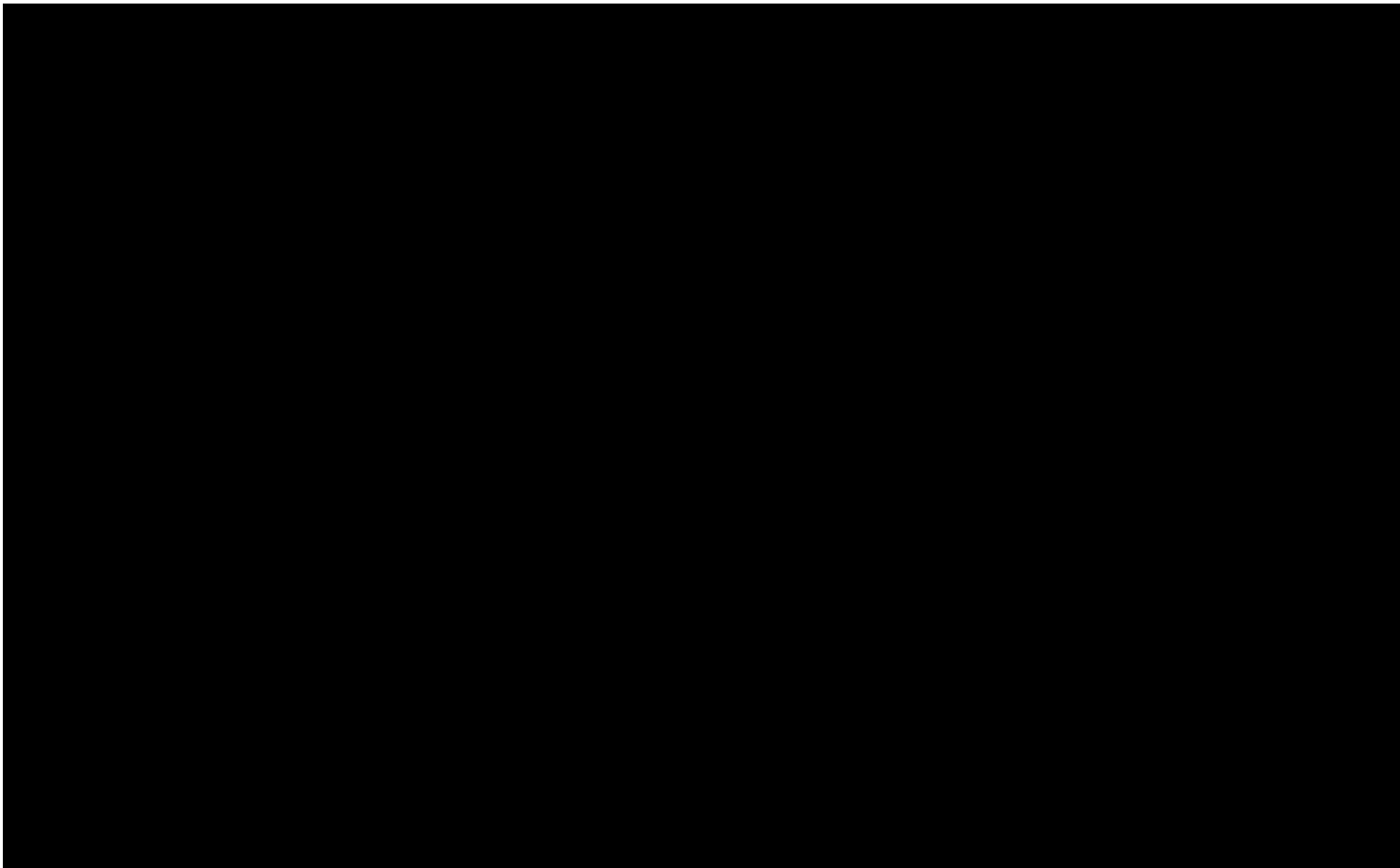


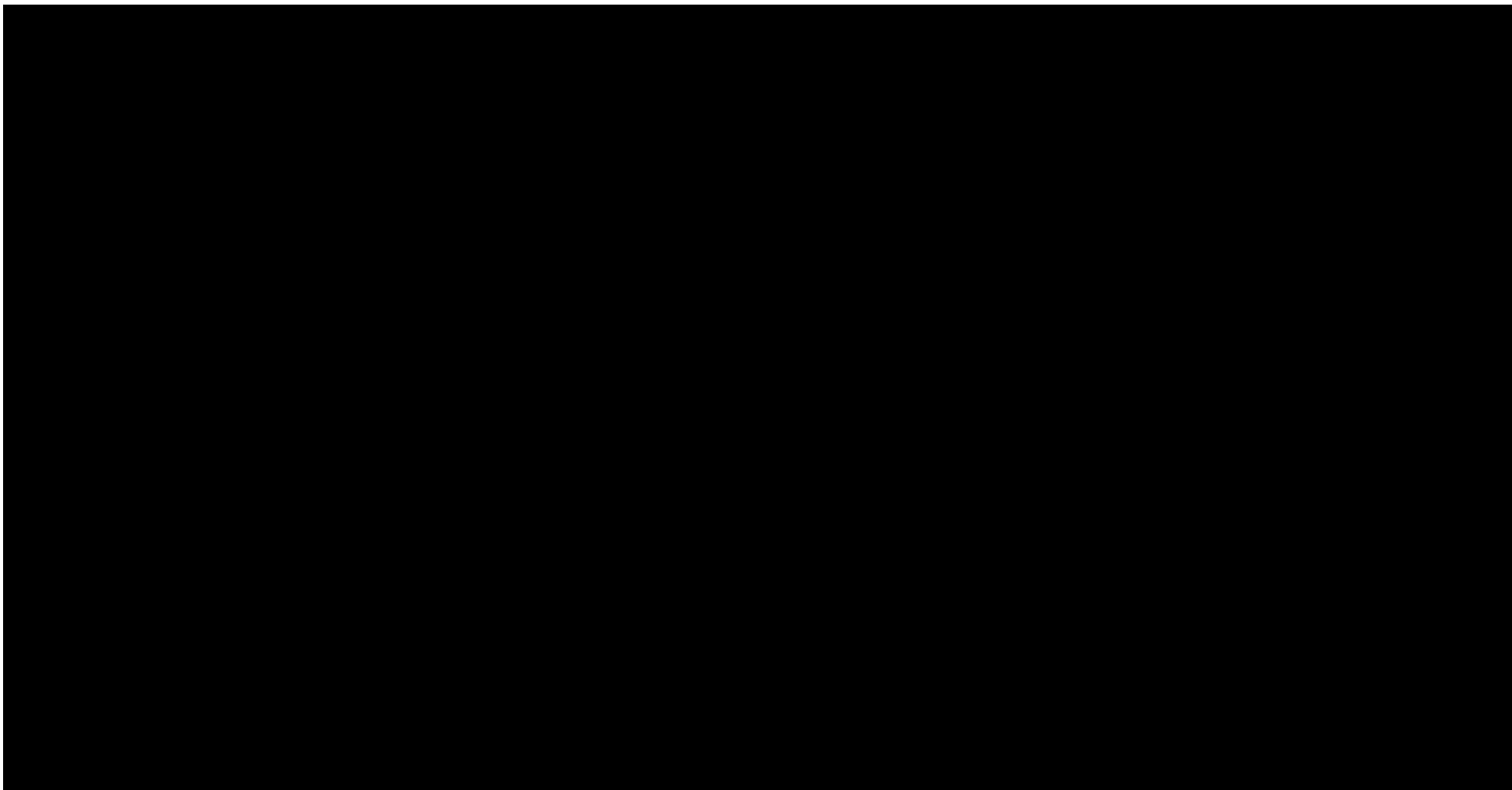






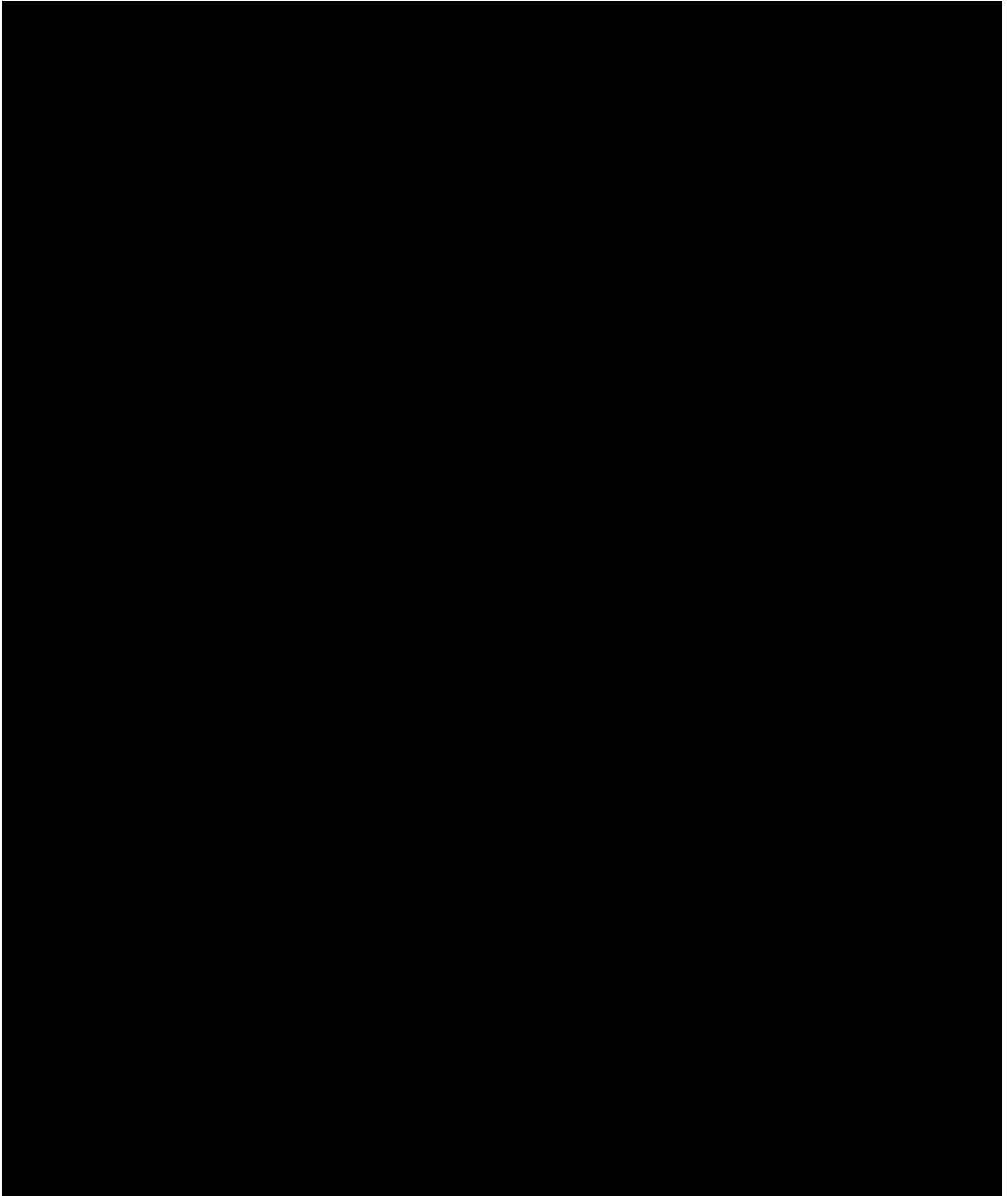


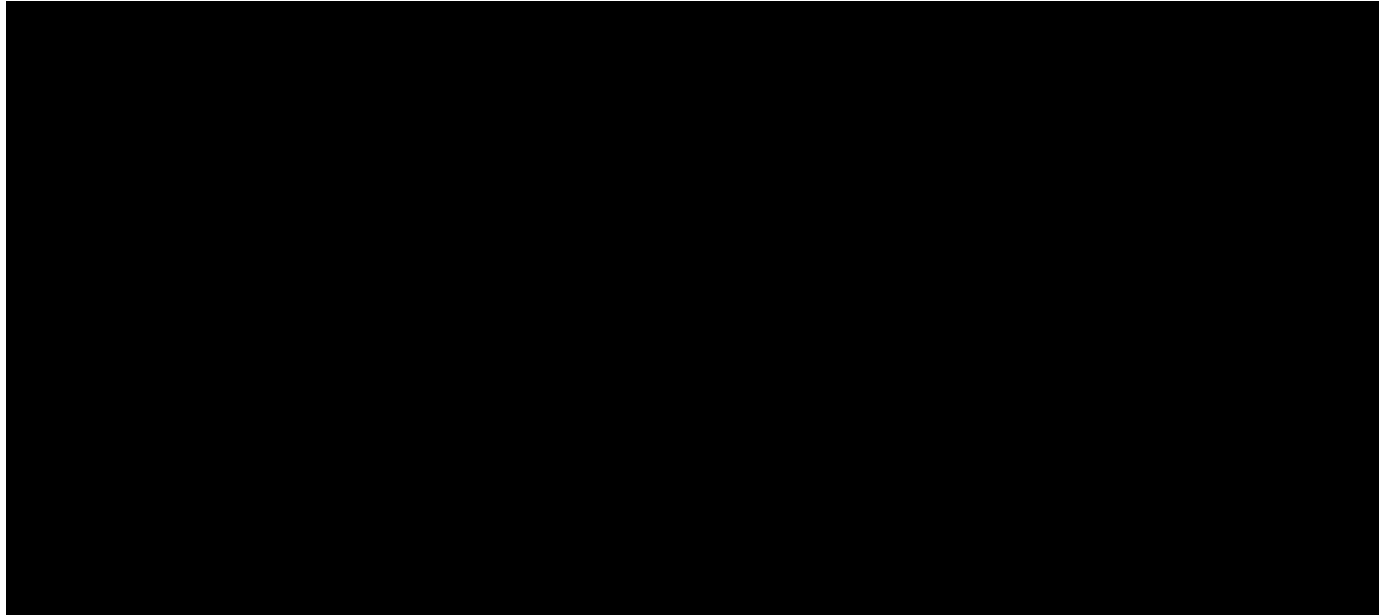




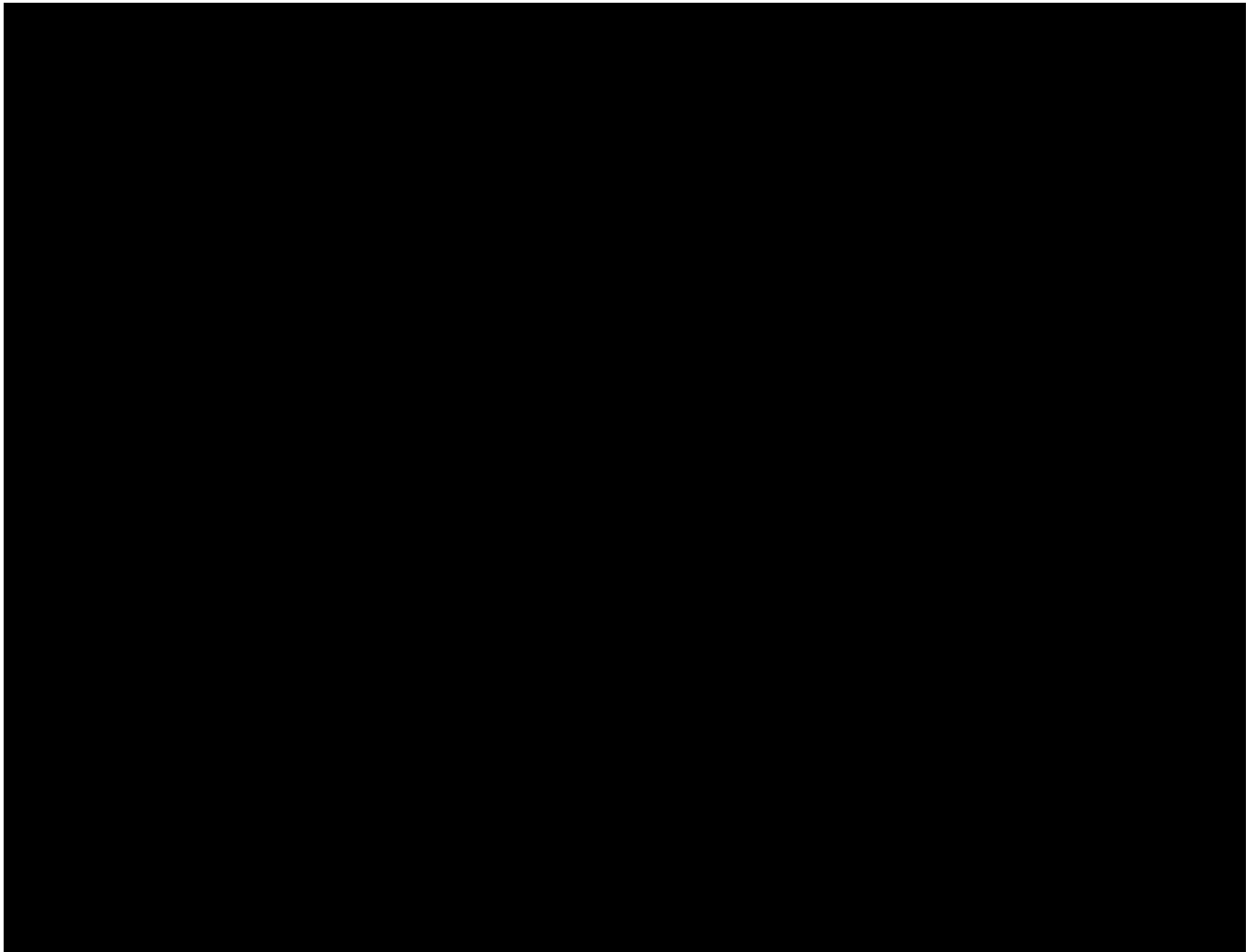


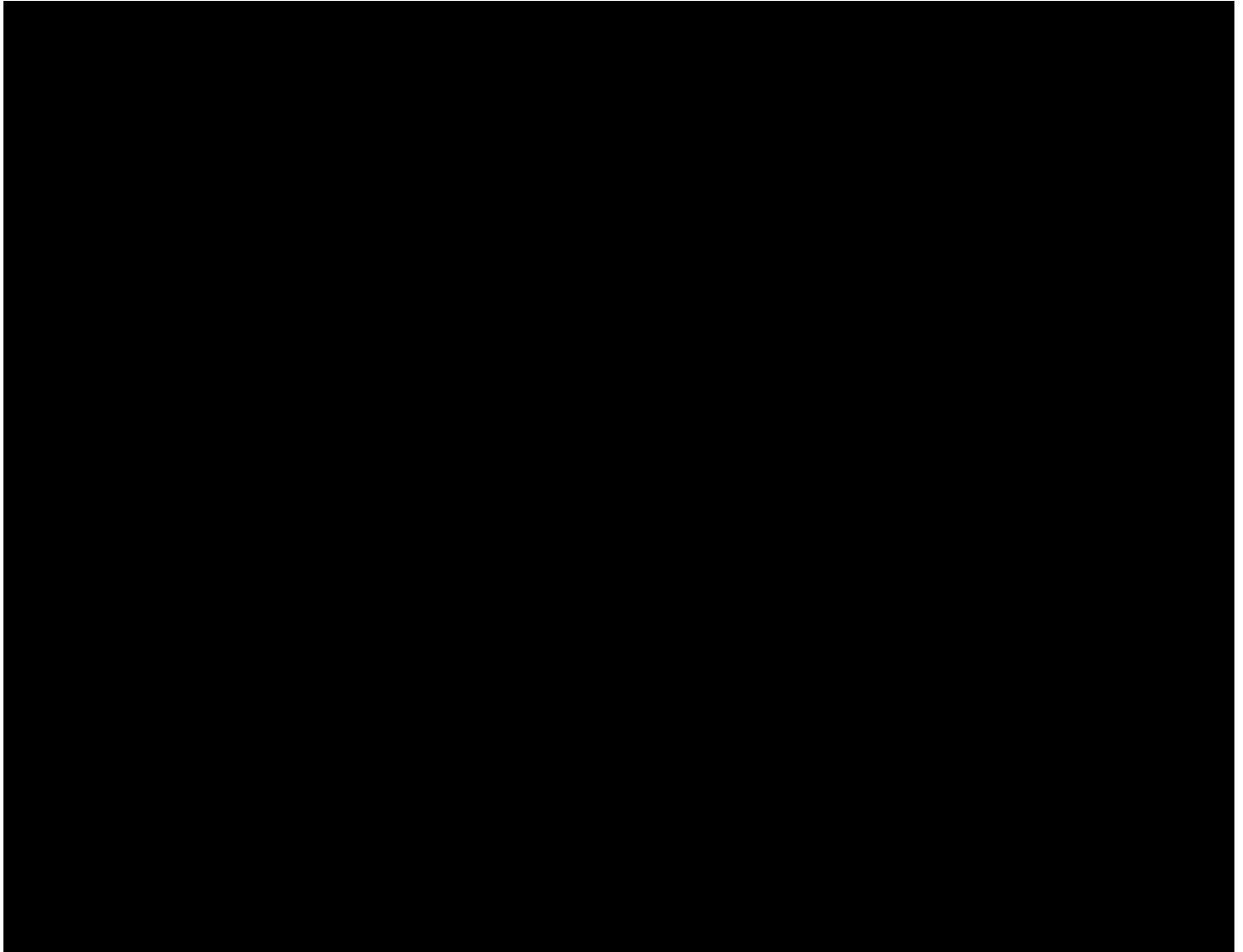
1.5.1.5 Fare Media





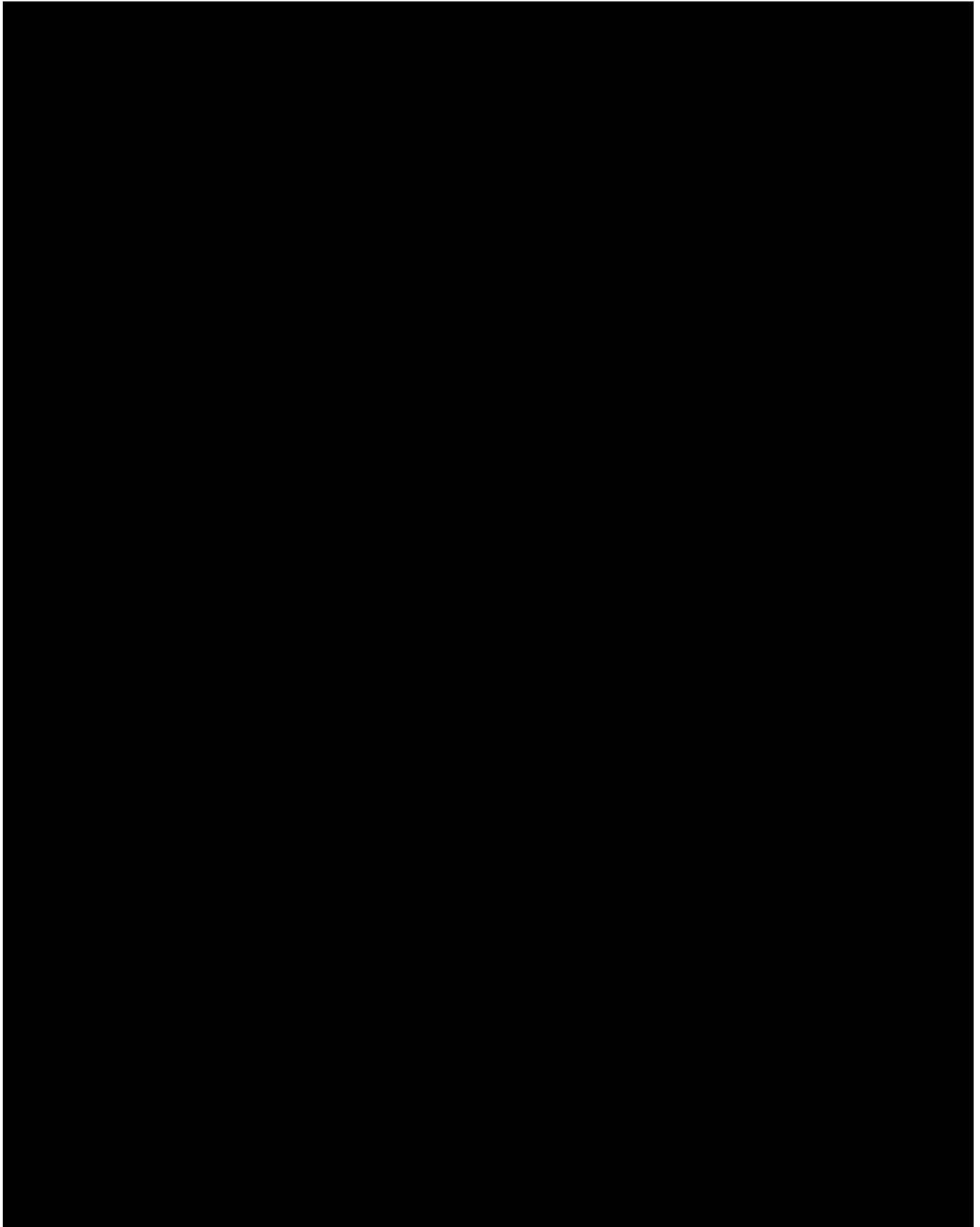
1.6 INIT's High-Reliability Field Devices and Subsystems





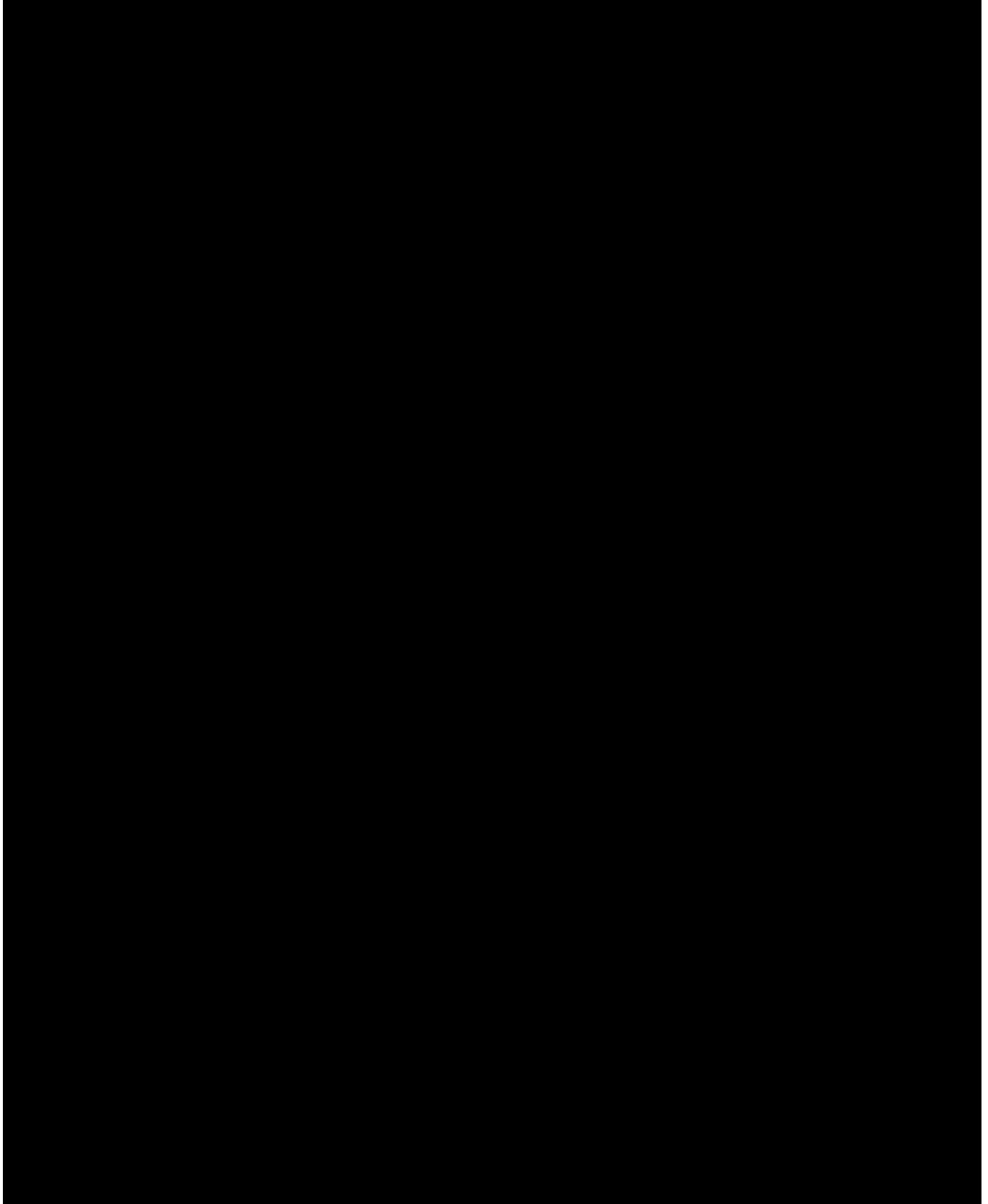
1.6.1 INIT's Service-Proven PROXmobil3 Vehicle Onboard and Station Platform Validator

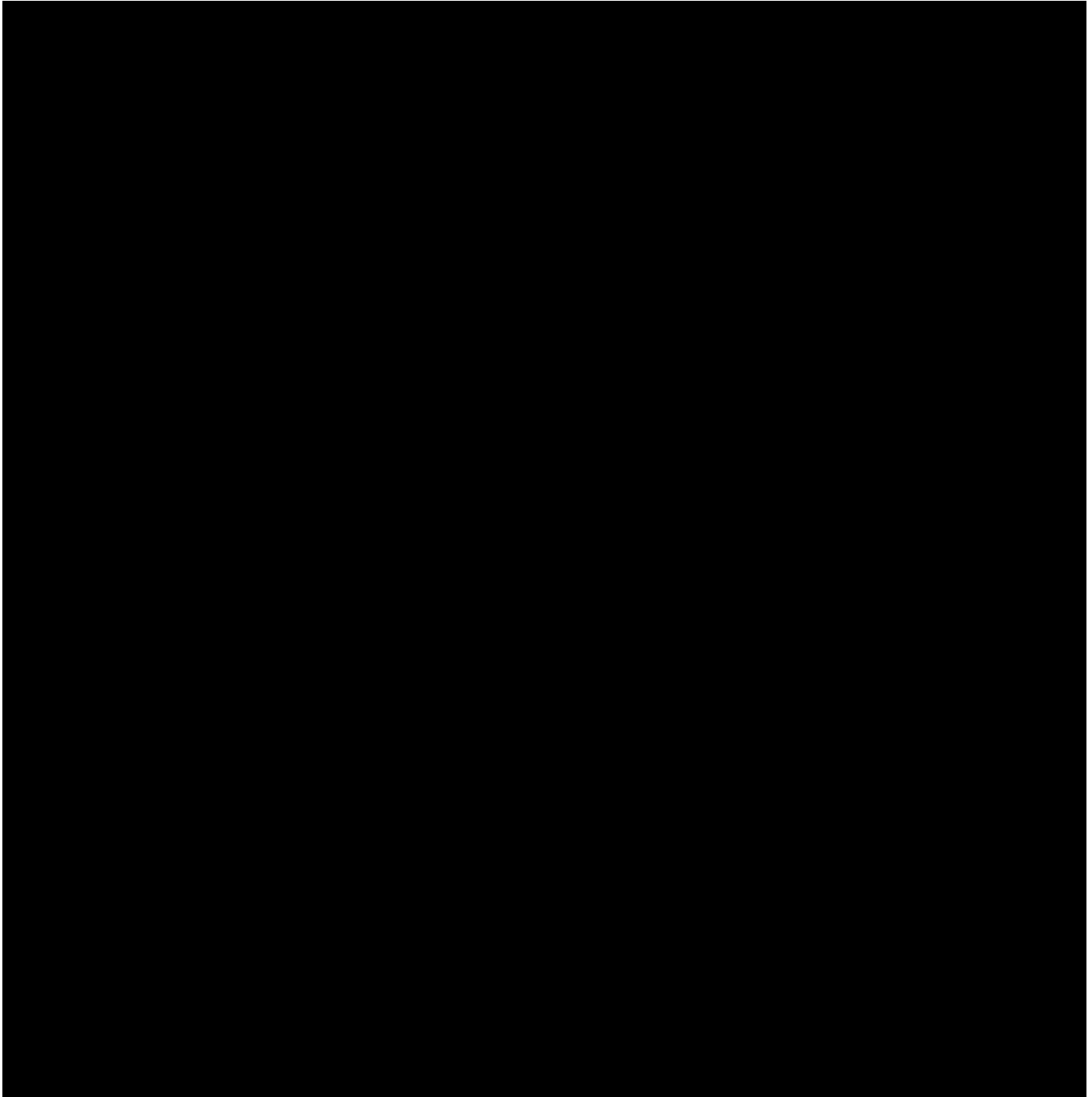


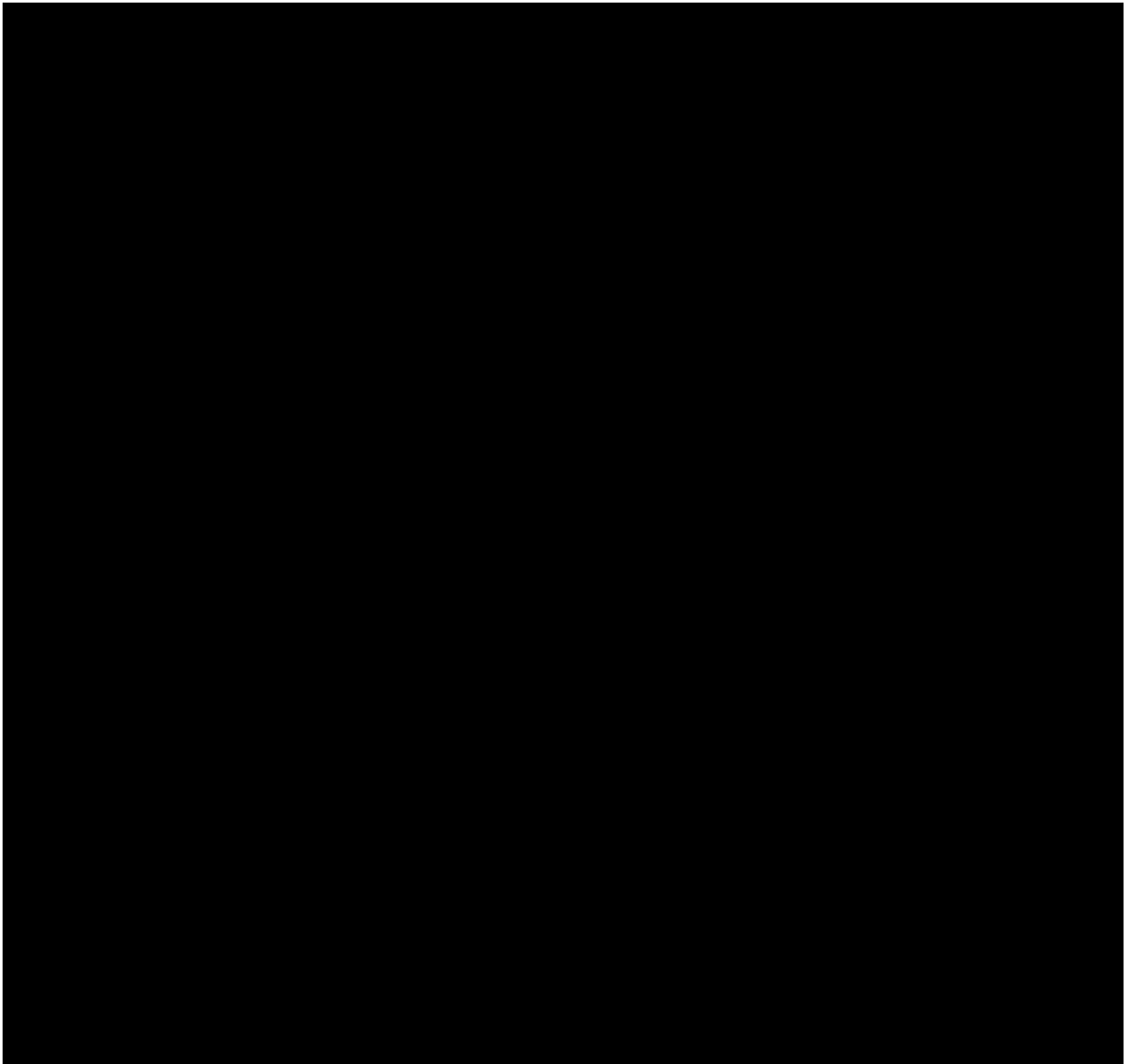




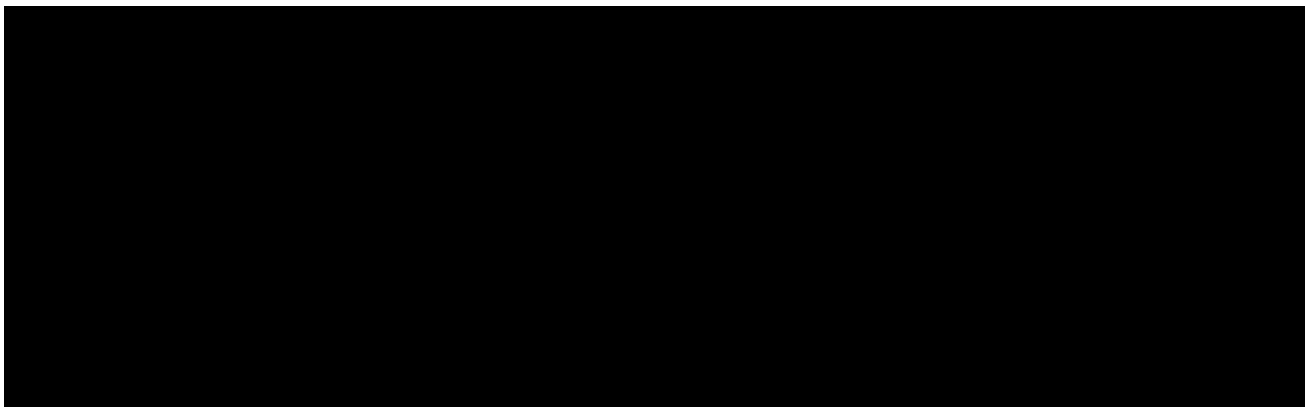
1.6.1.1 Hardware

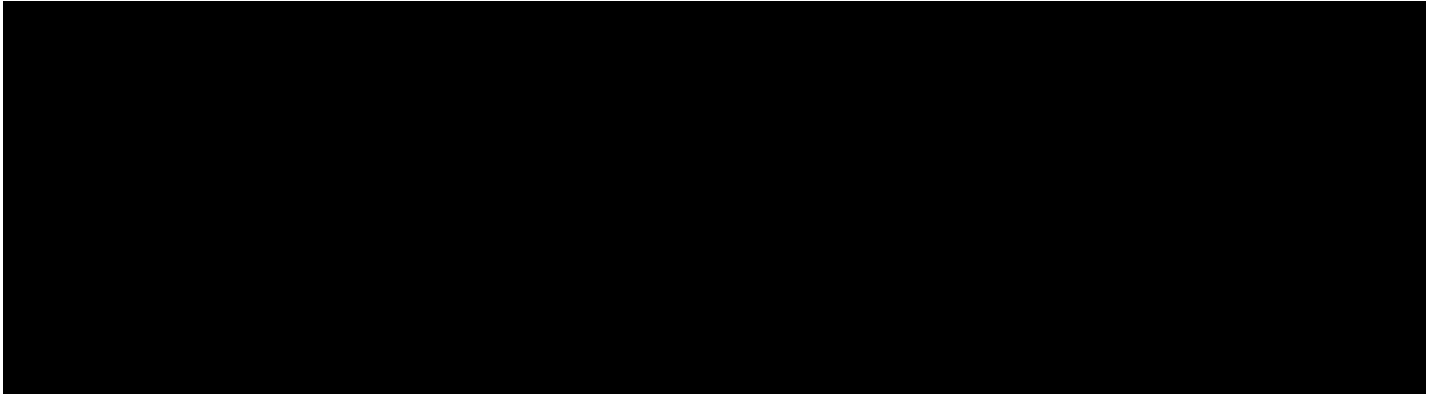




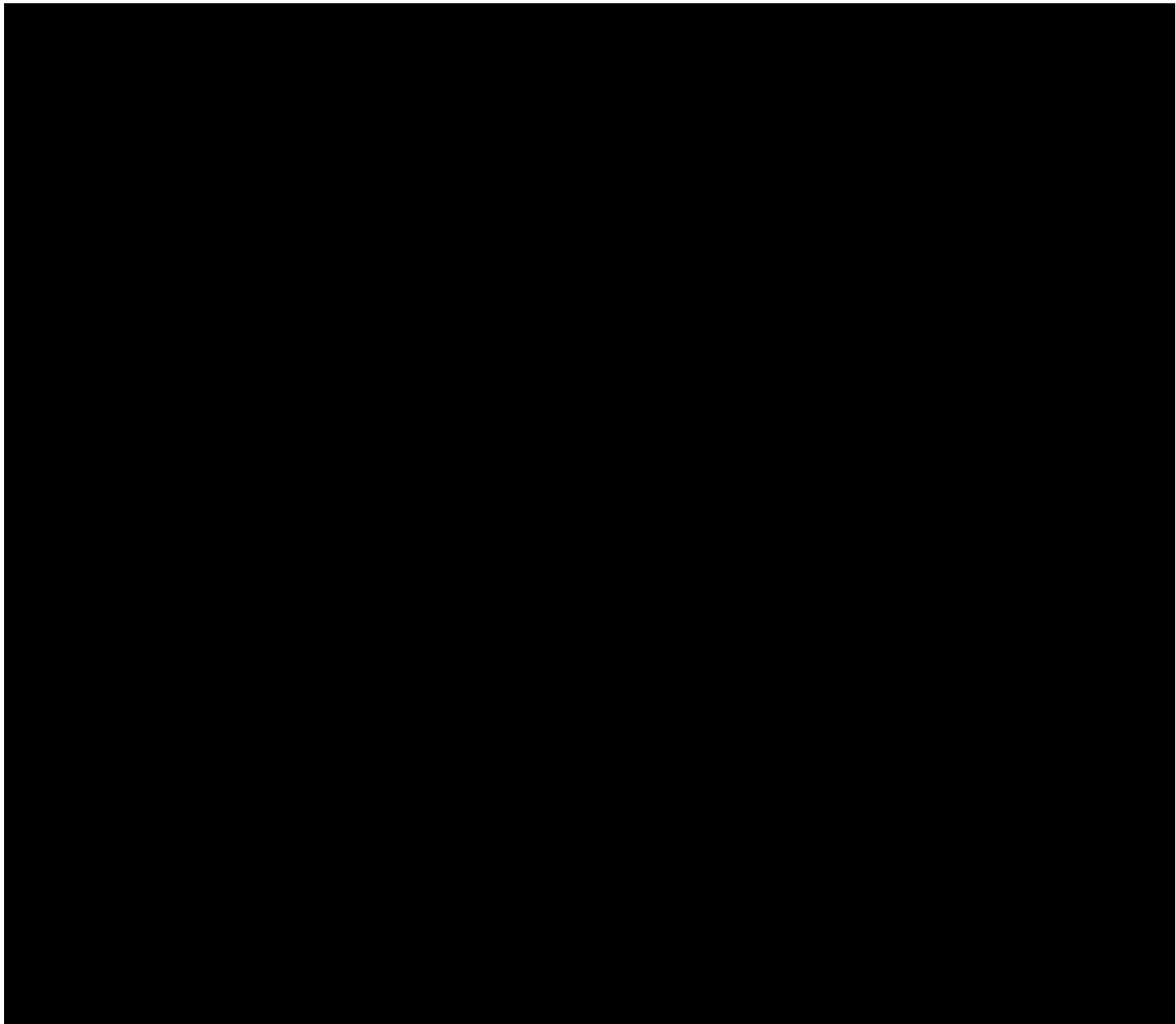


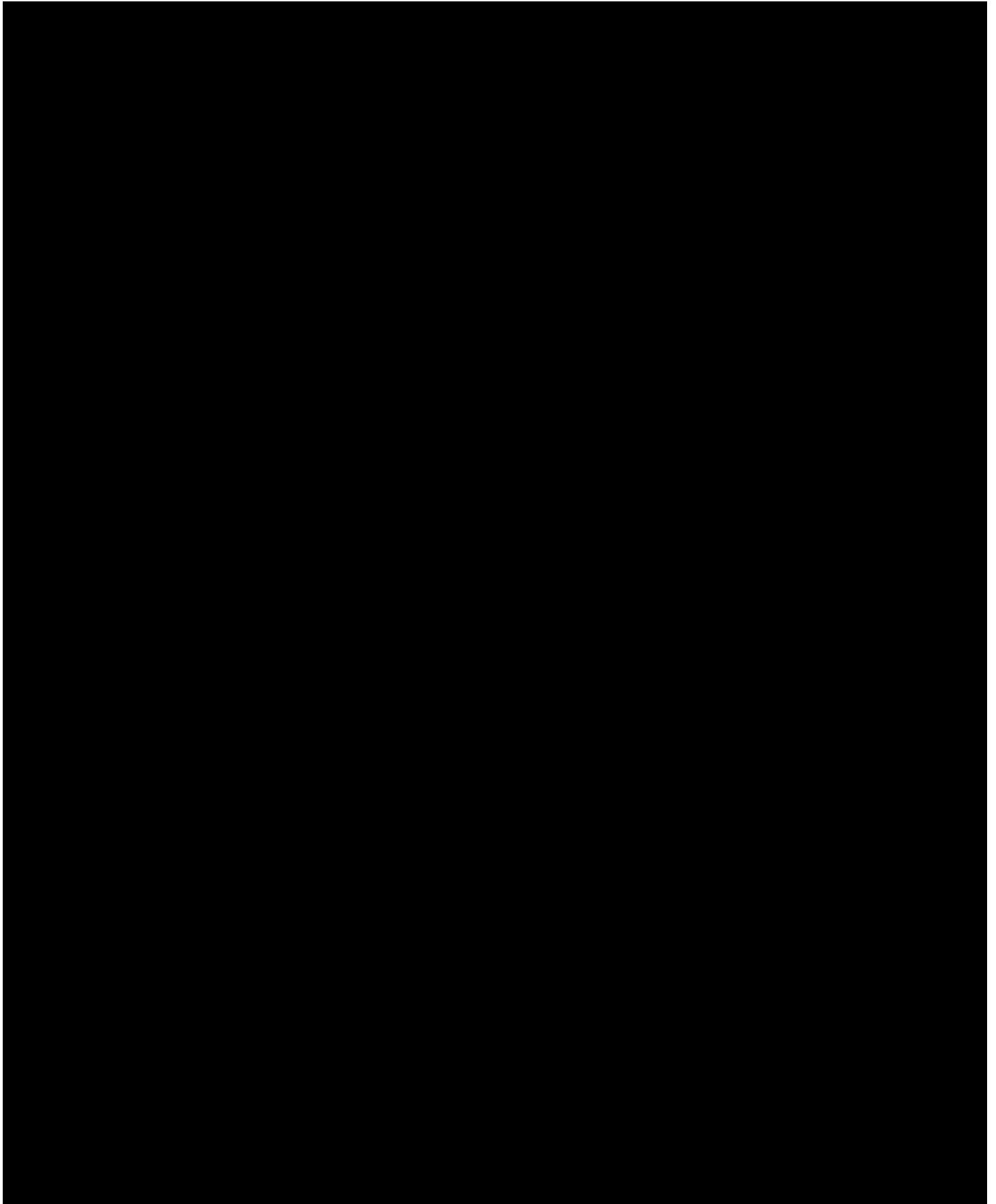
1.6.1.1.1 ADA Compliance



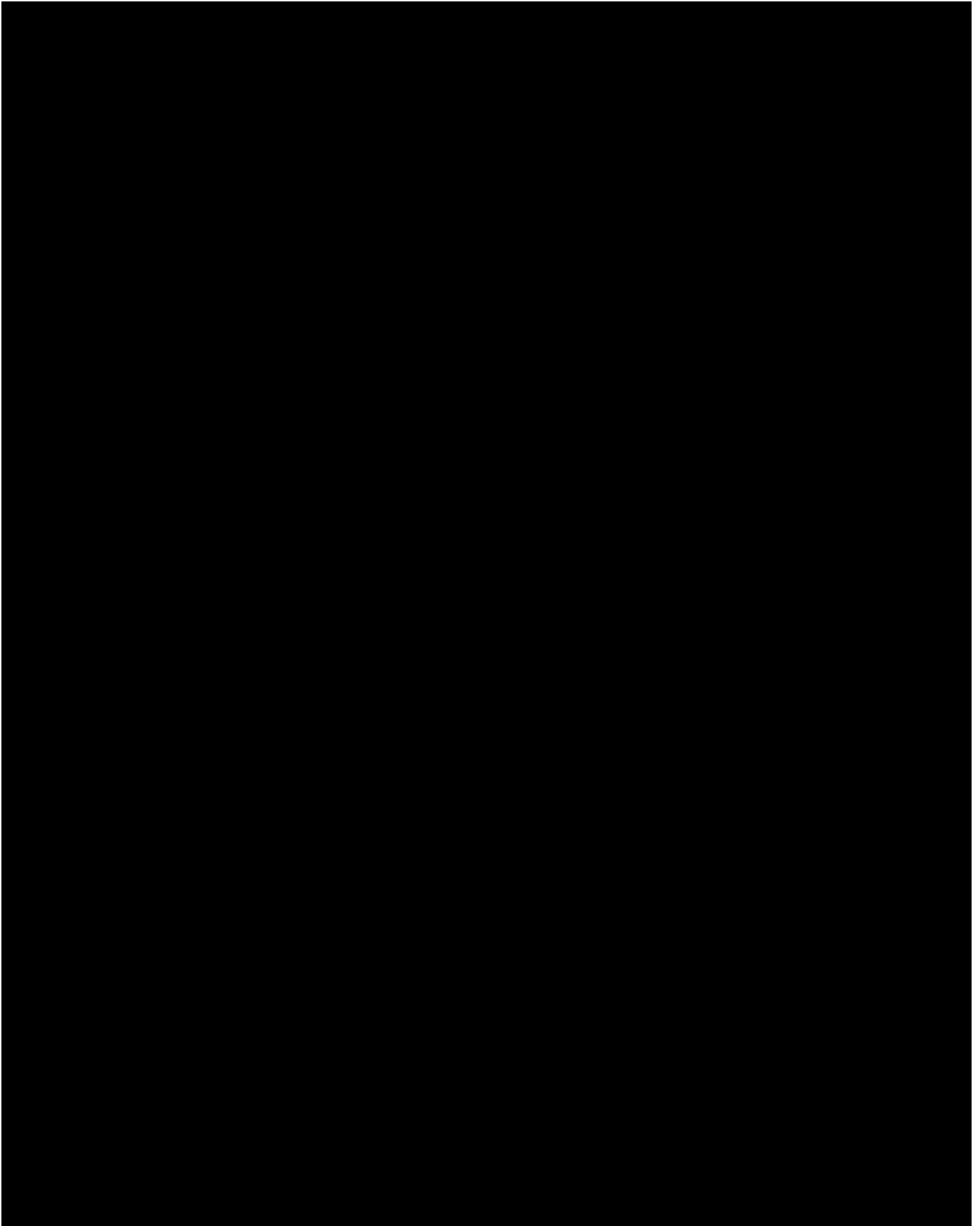


1.6.1.1.2 Enclosure



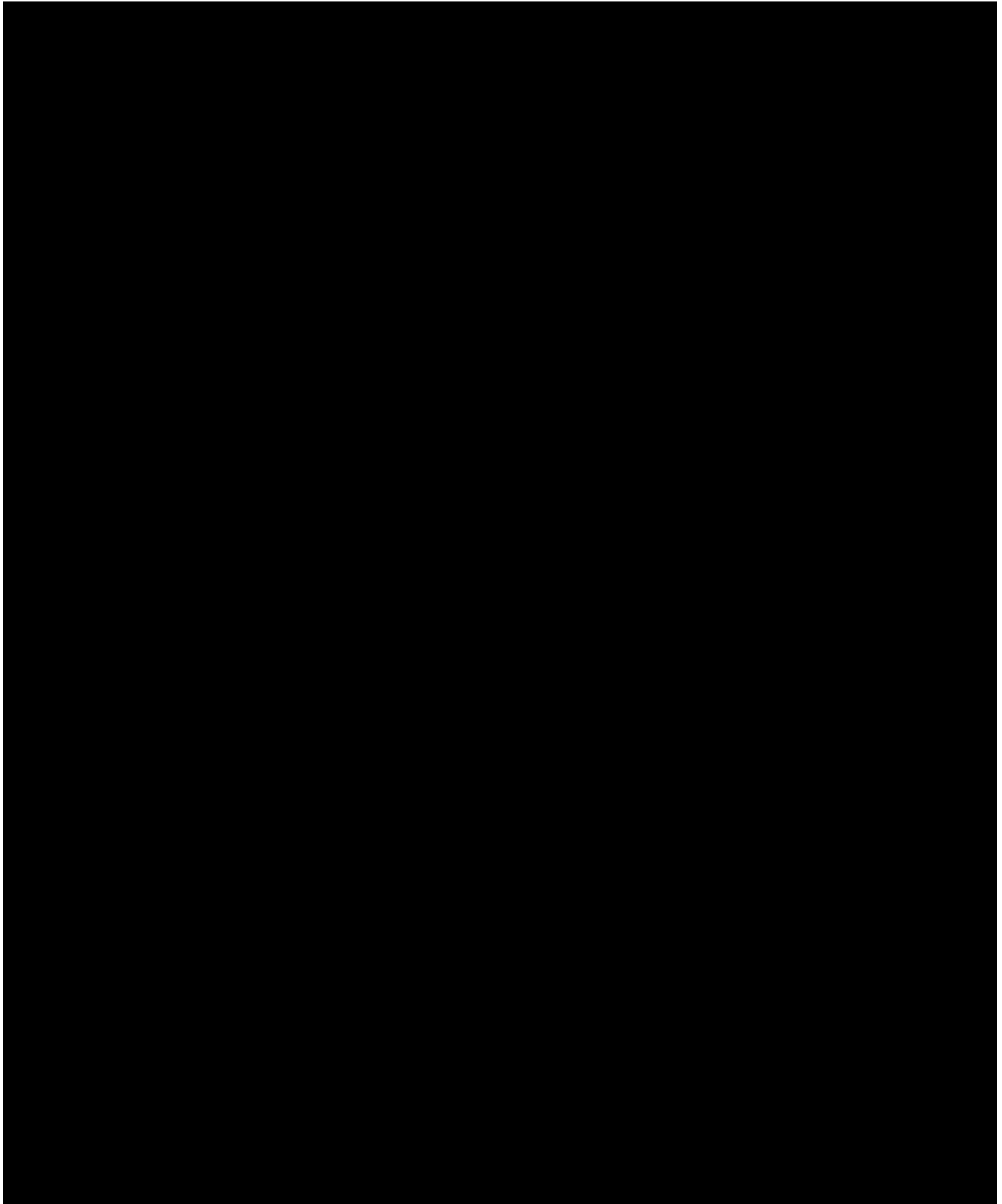


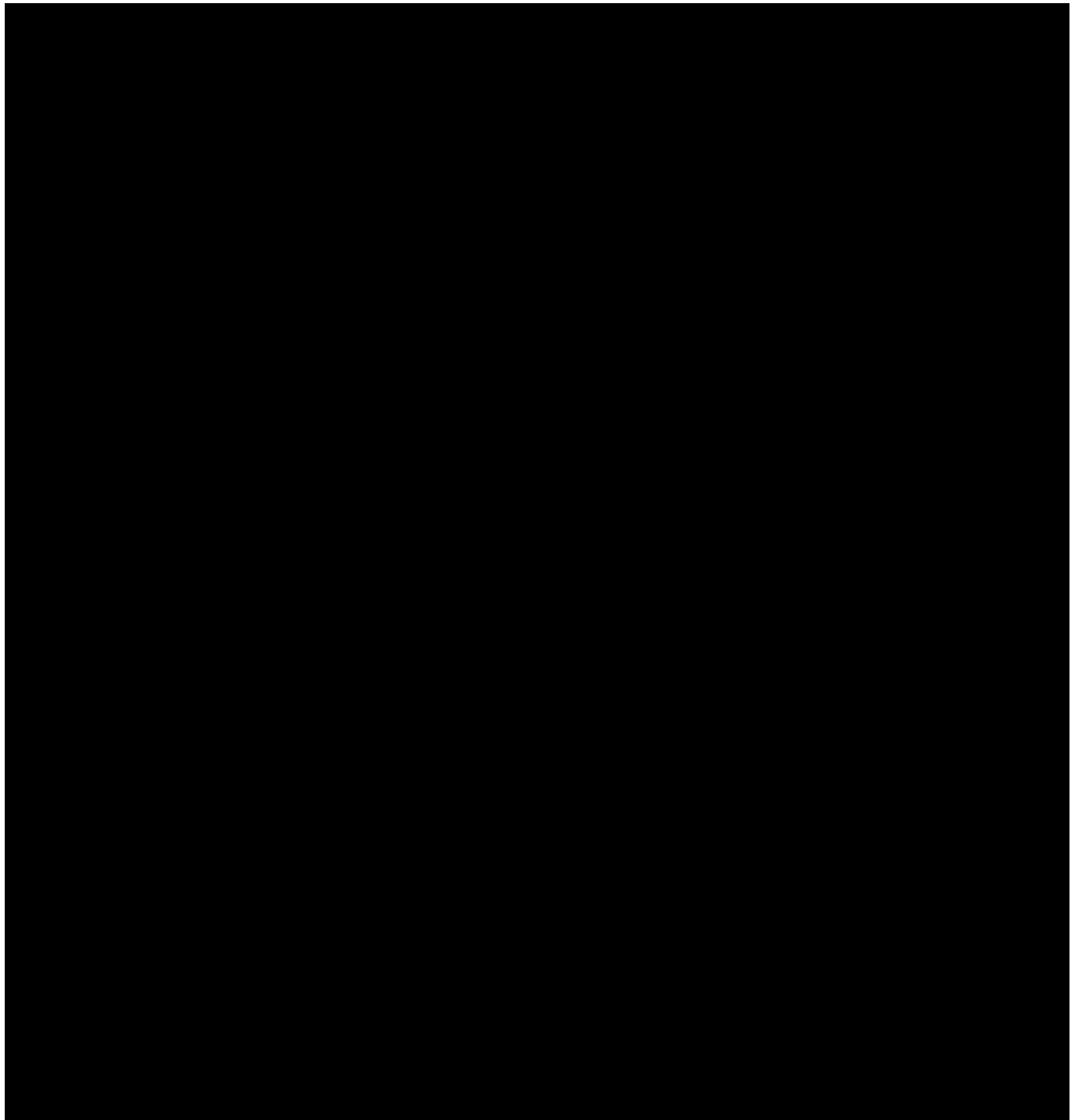




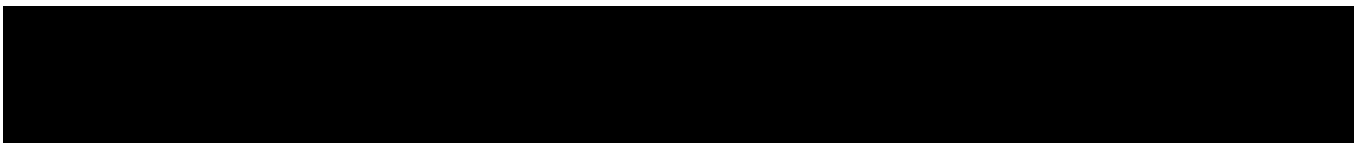


1.6.1.1.3 Installation & Mounting

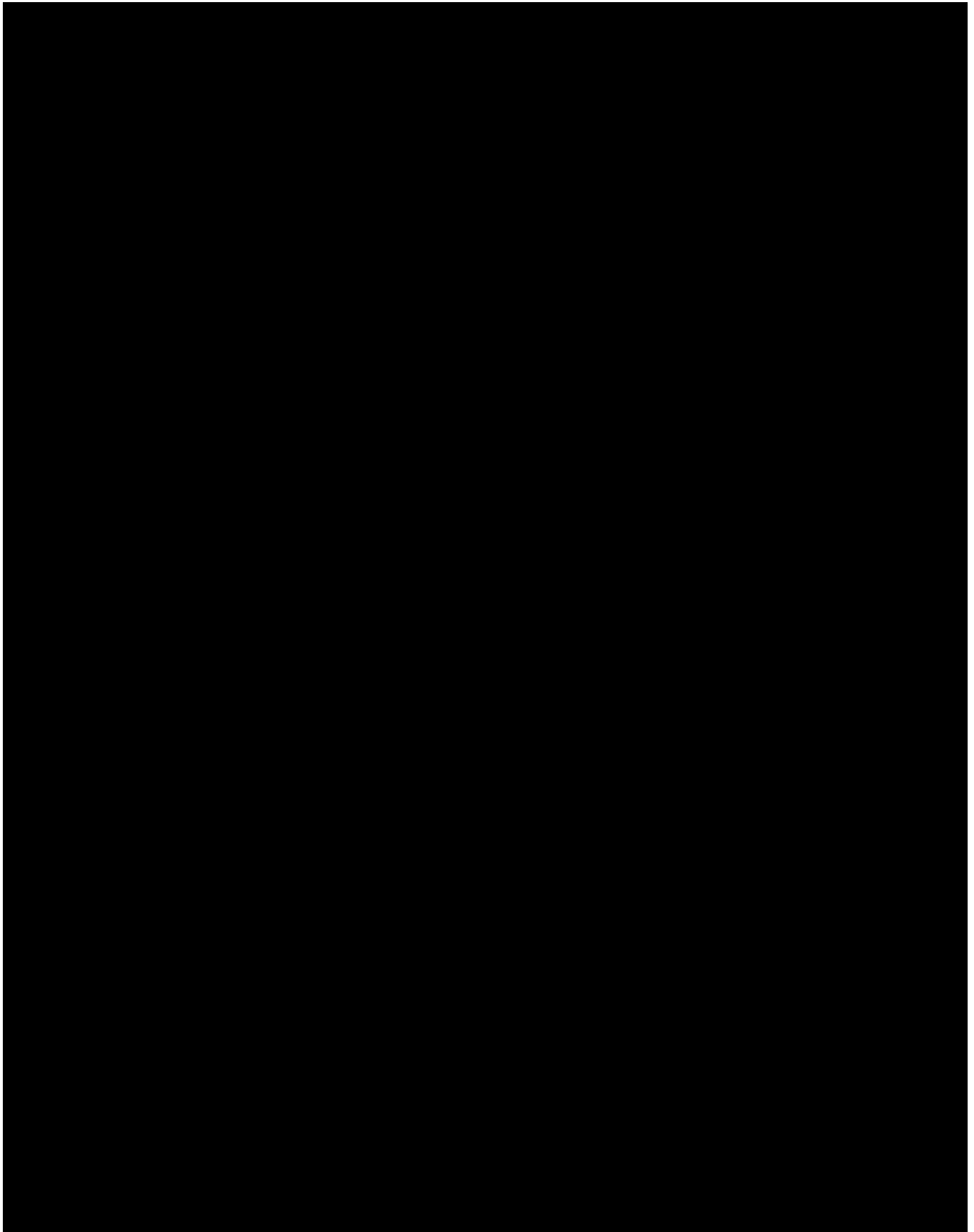




1.6.1.1.4 Power

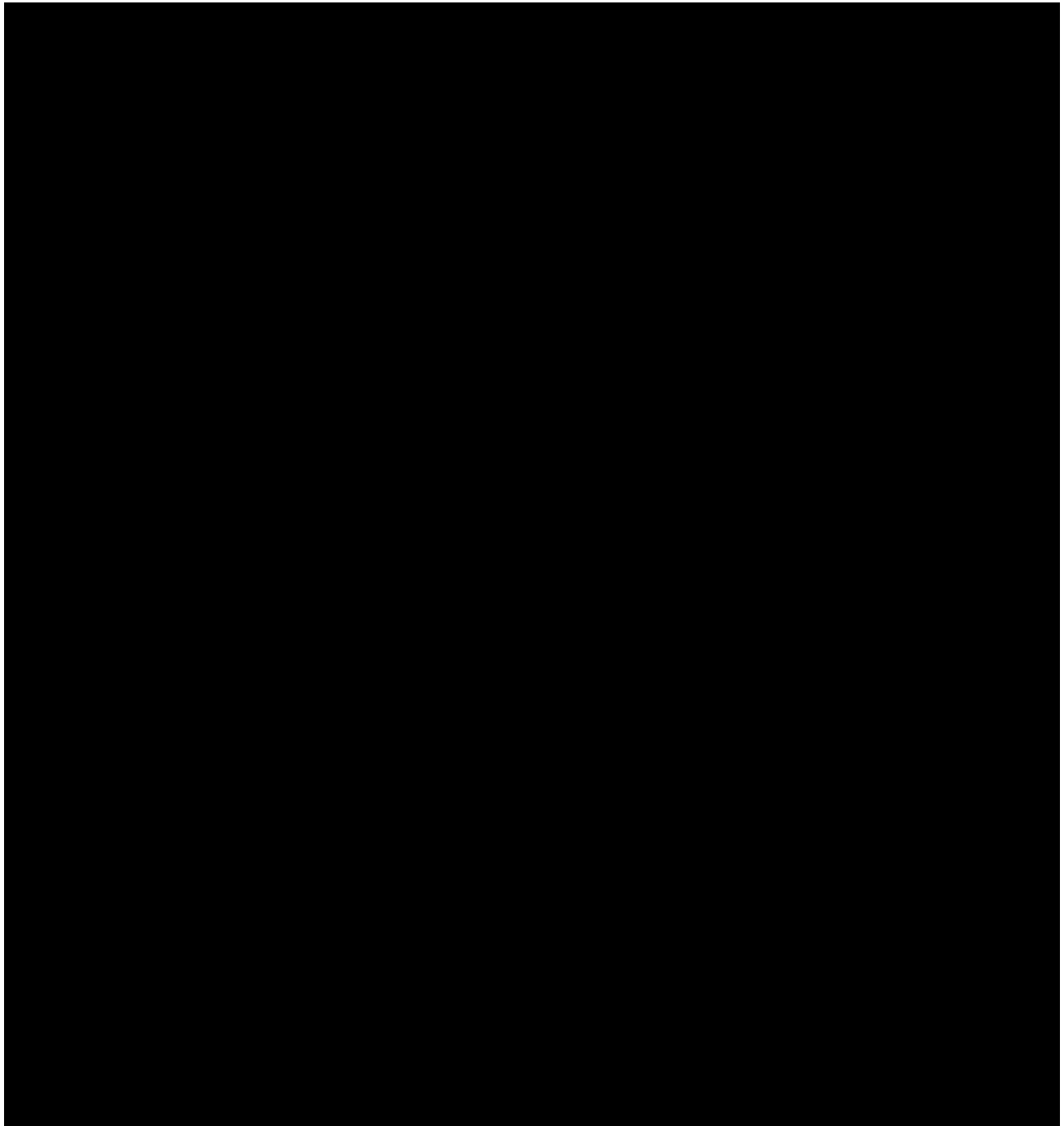


1.6.1.1.5 Communications

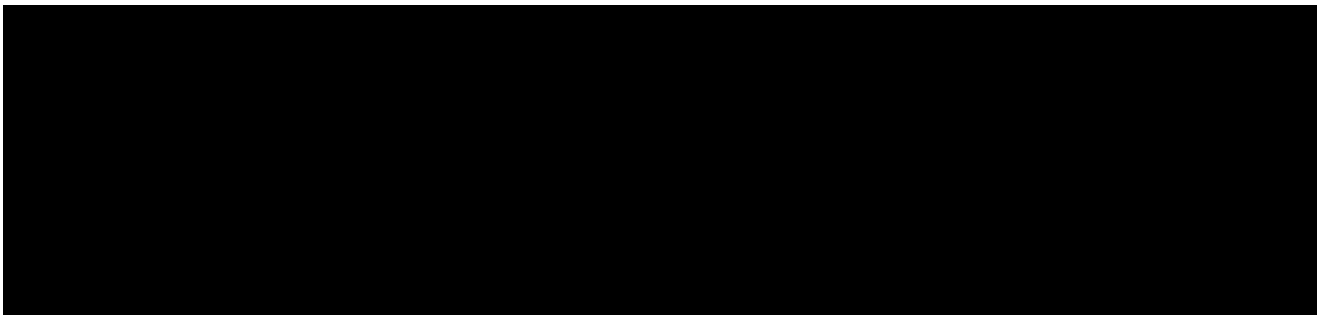


1.6.1.2 Software (Functionality)

1.6.1.2.1 Transaction Records

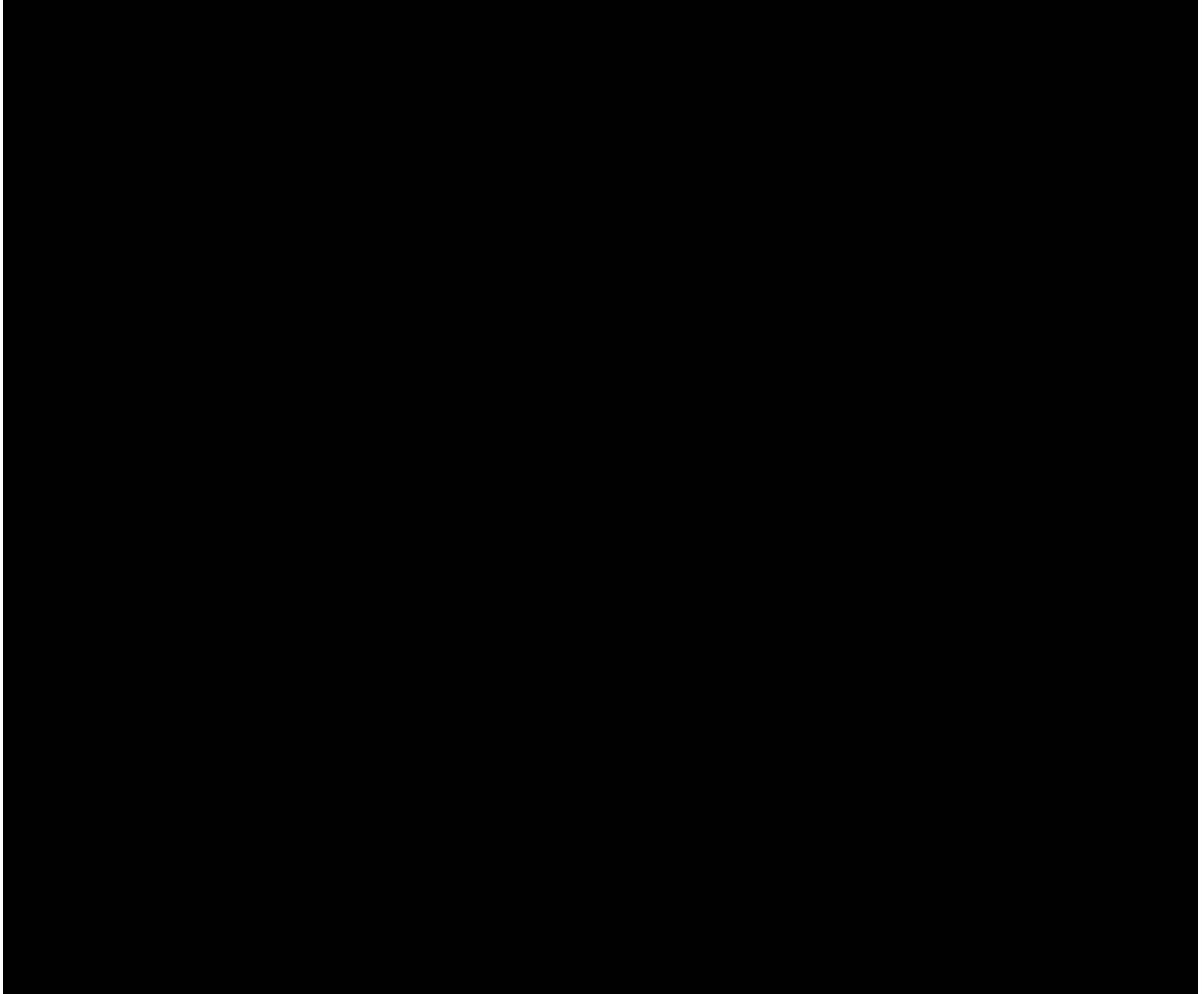


1.6.1.2.2 Audit Registers

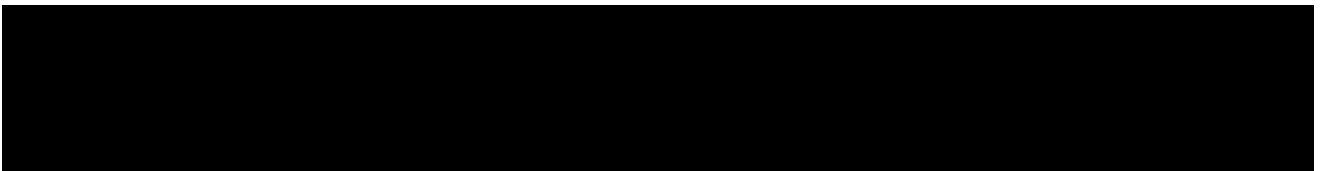


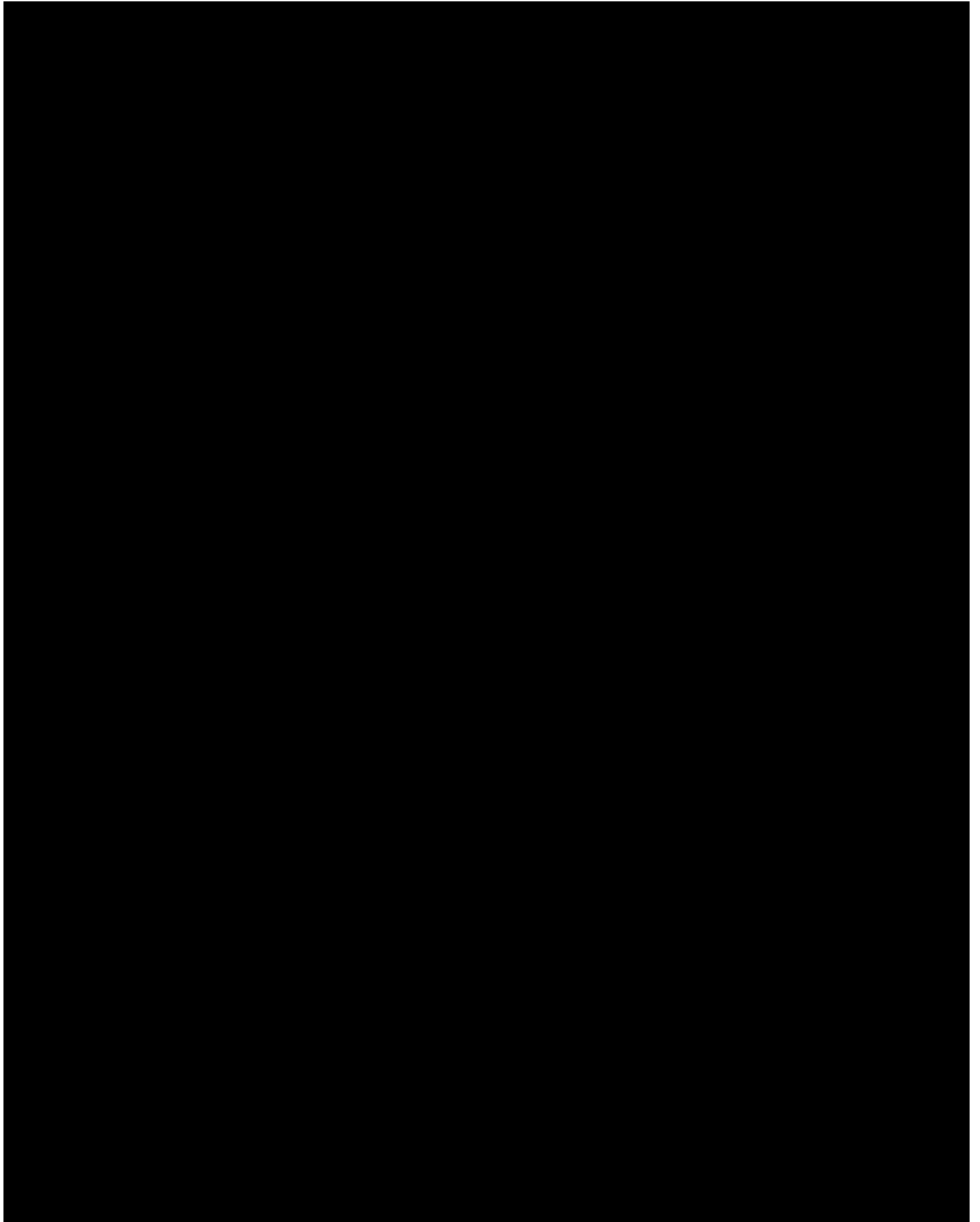


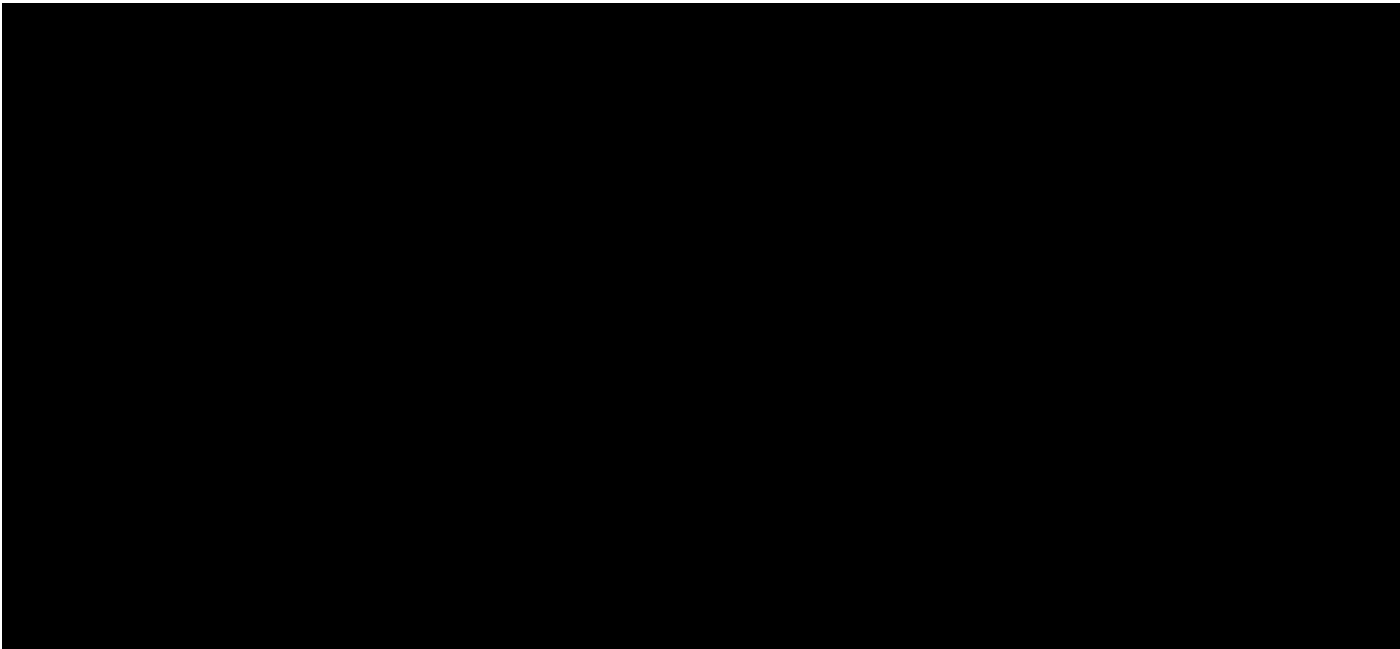
1.6.1.2.3 Events & Alerts



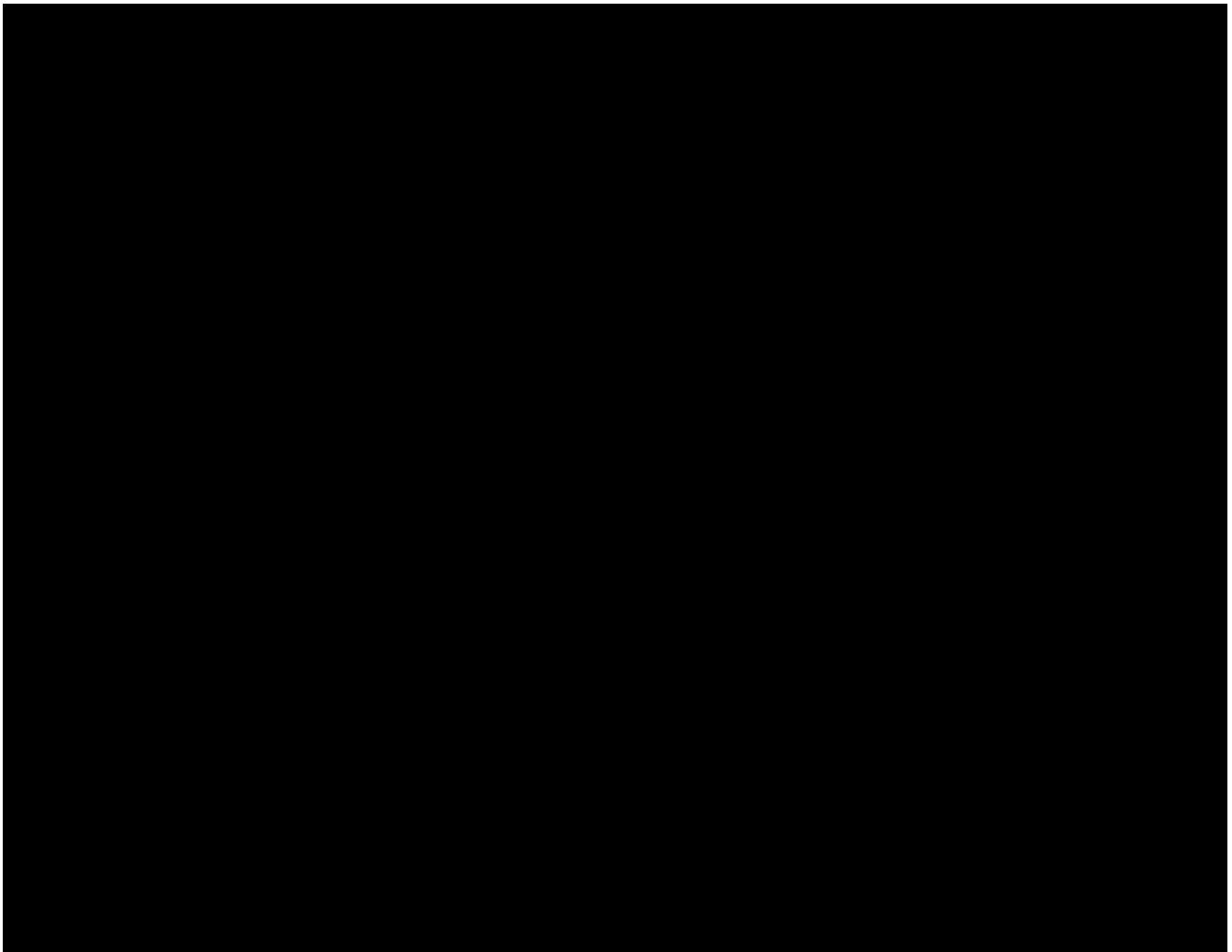
1.6.1.2.4 High-Speed Validation Process with Offline Provisions

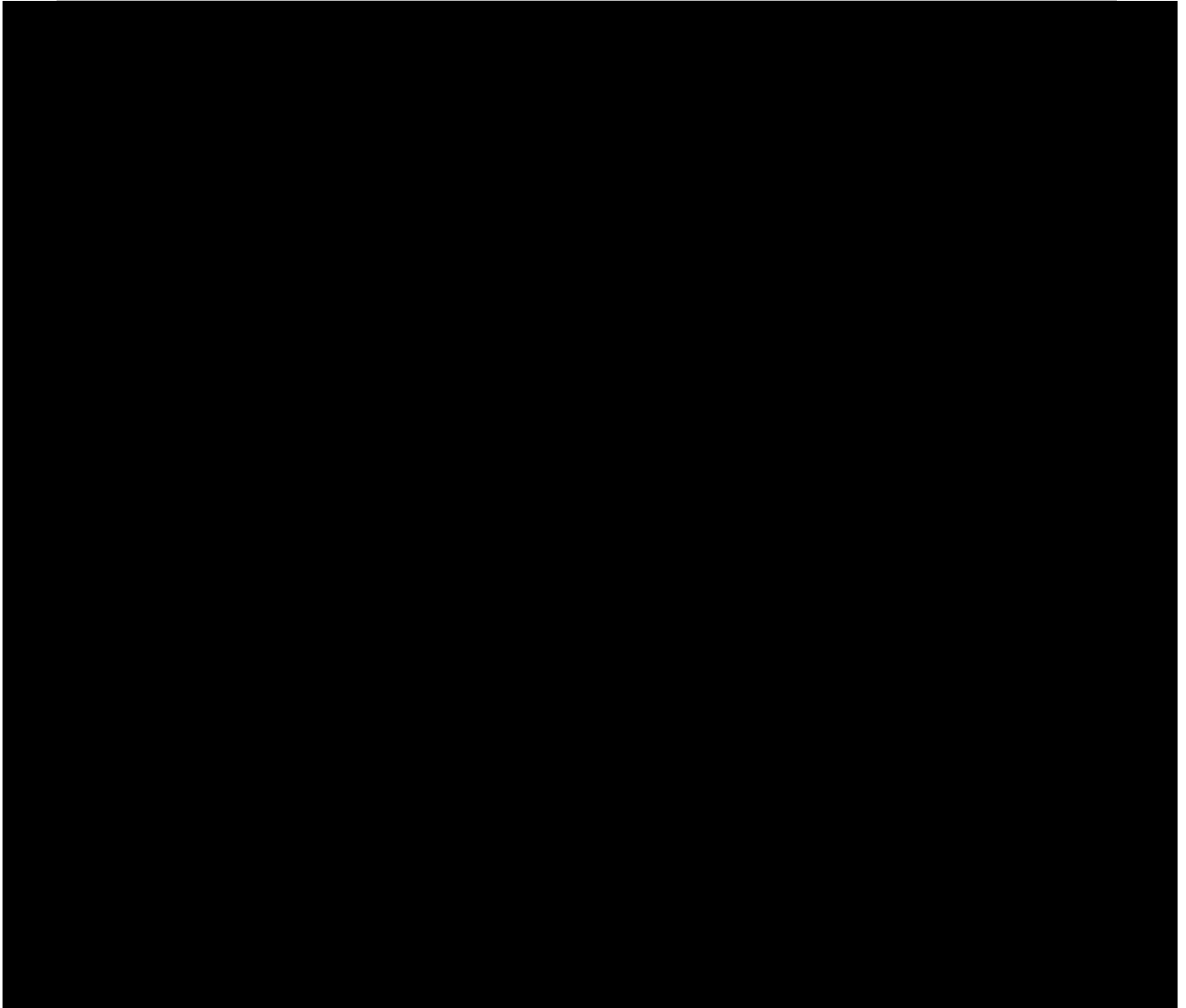




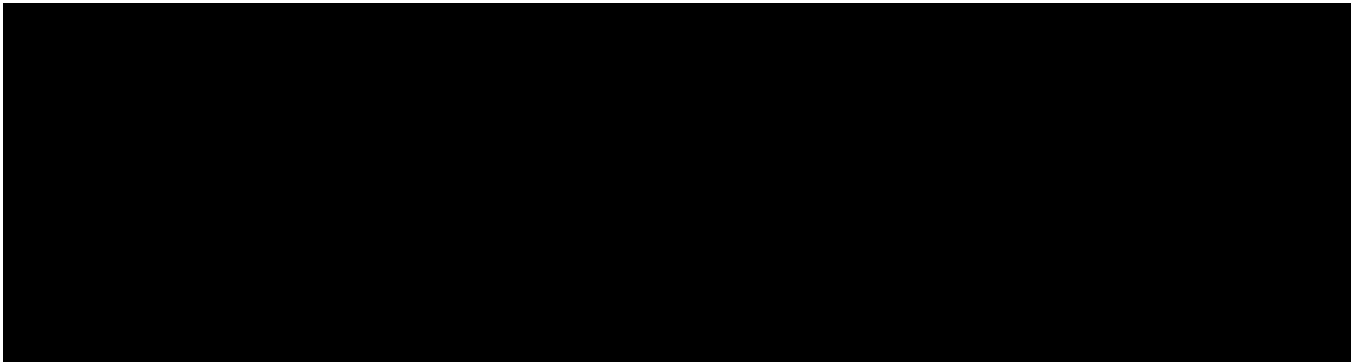


1.6.1.2.5 Customer Interfaces



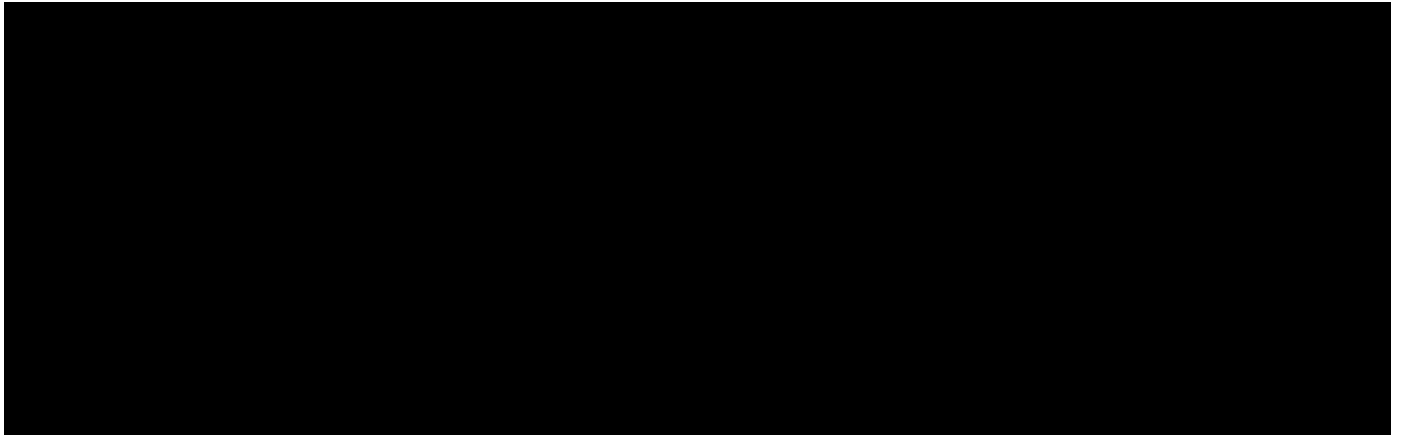


1.6.1.3 Maintainability

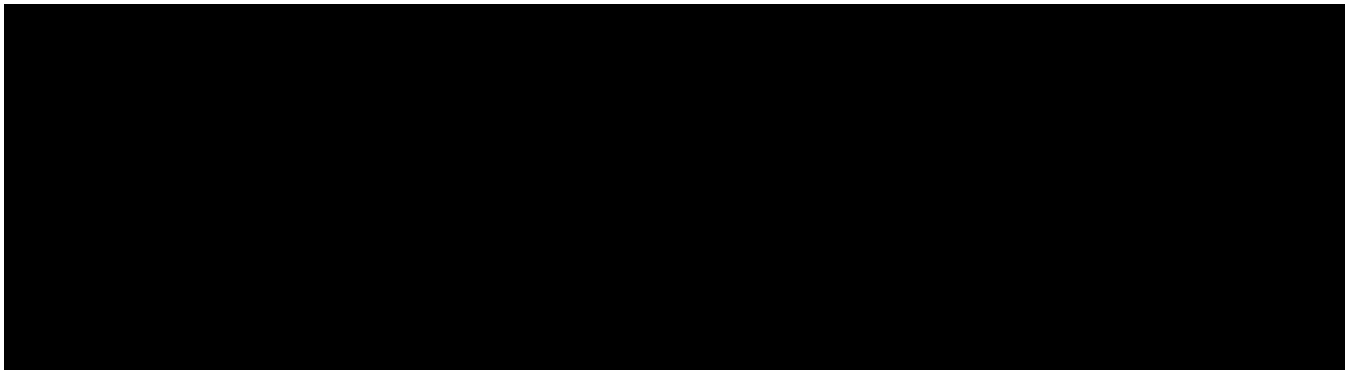




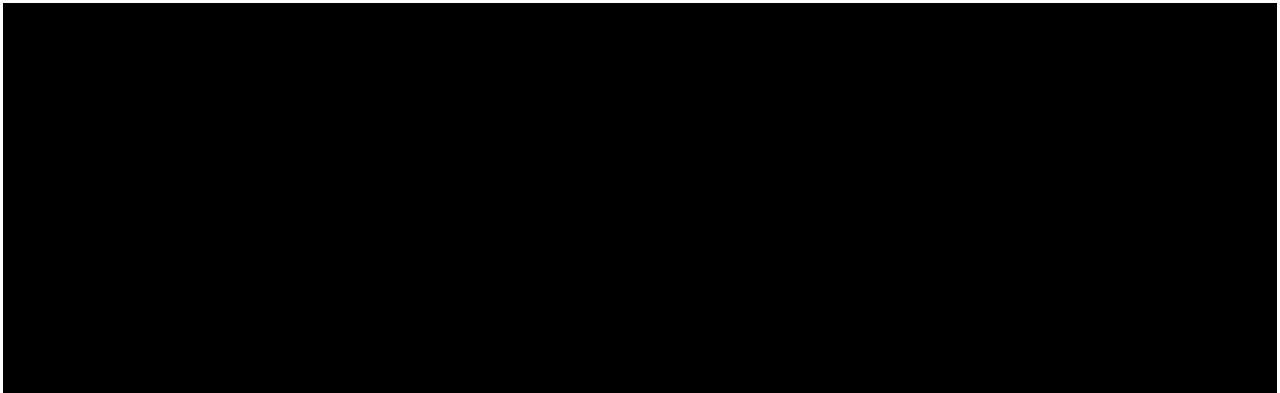
1.6.2.1 Hardware



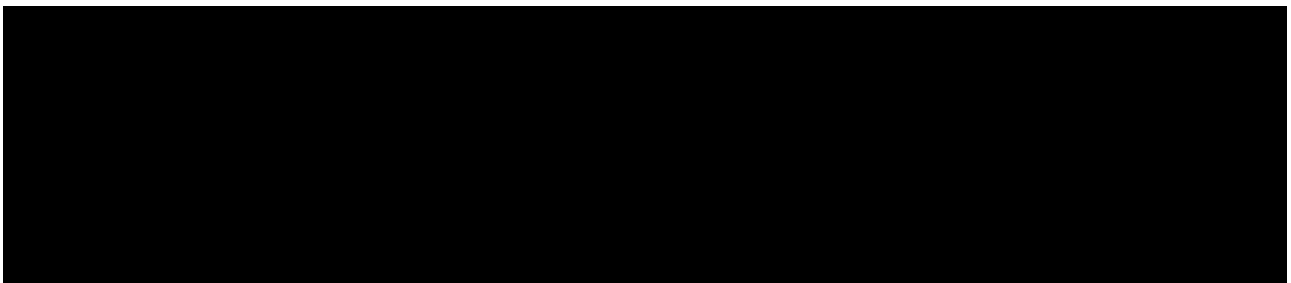
1.6.2.1.1 Controller Board



1.6.2.1.2 TFT-Display

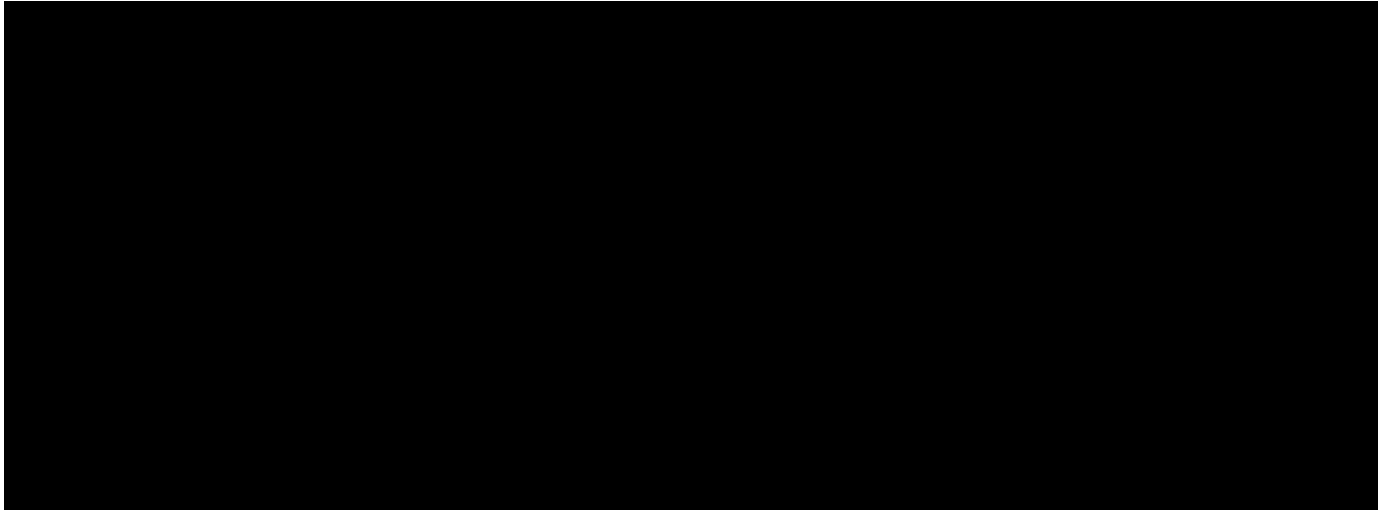


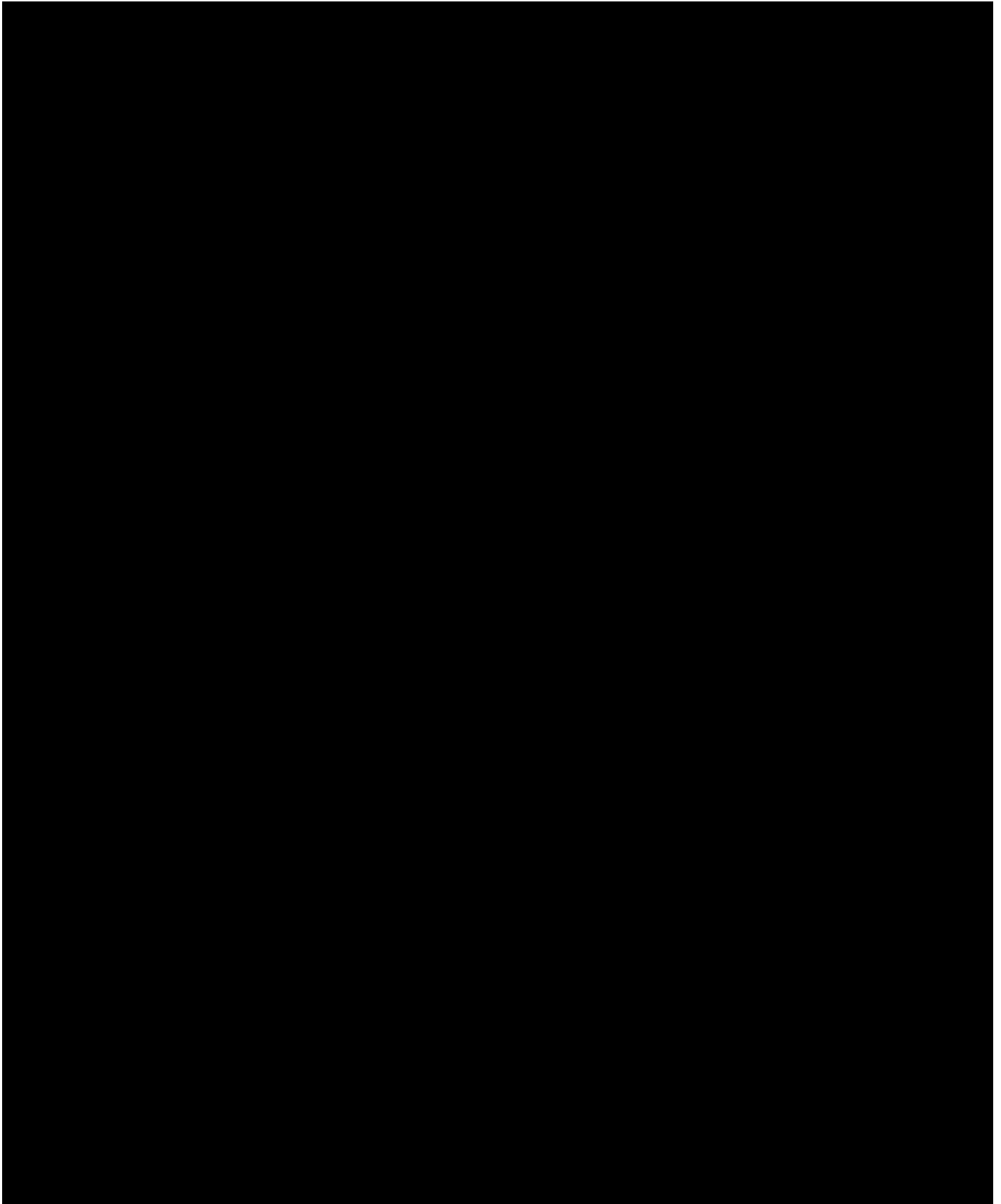
1.6.2.1.3 Touch Panel

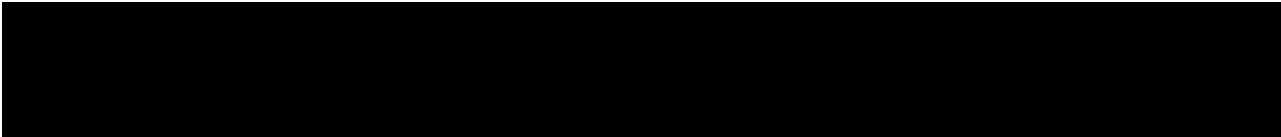




1.6.2.1.4 Enclosure & Mounting



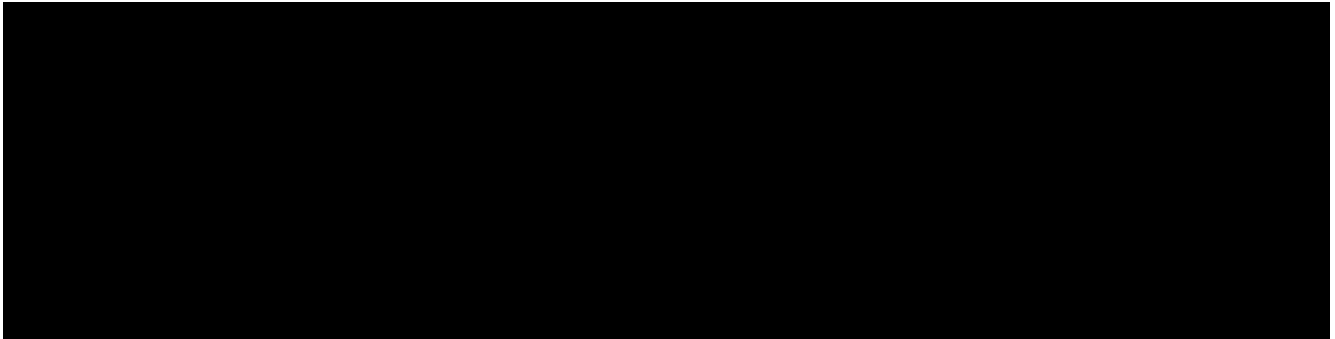




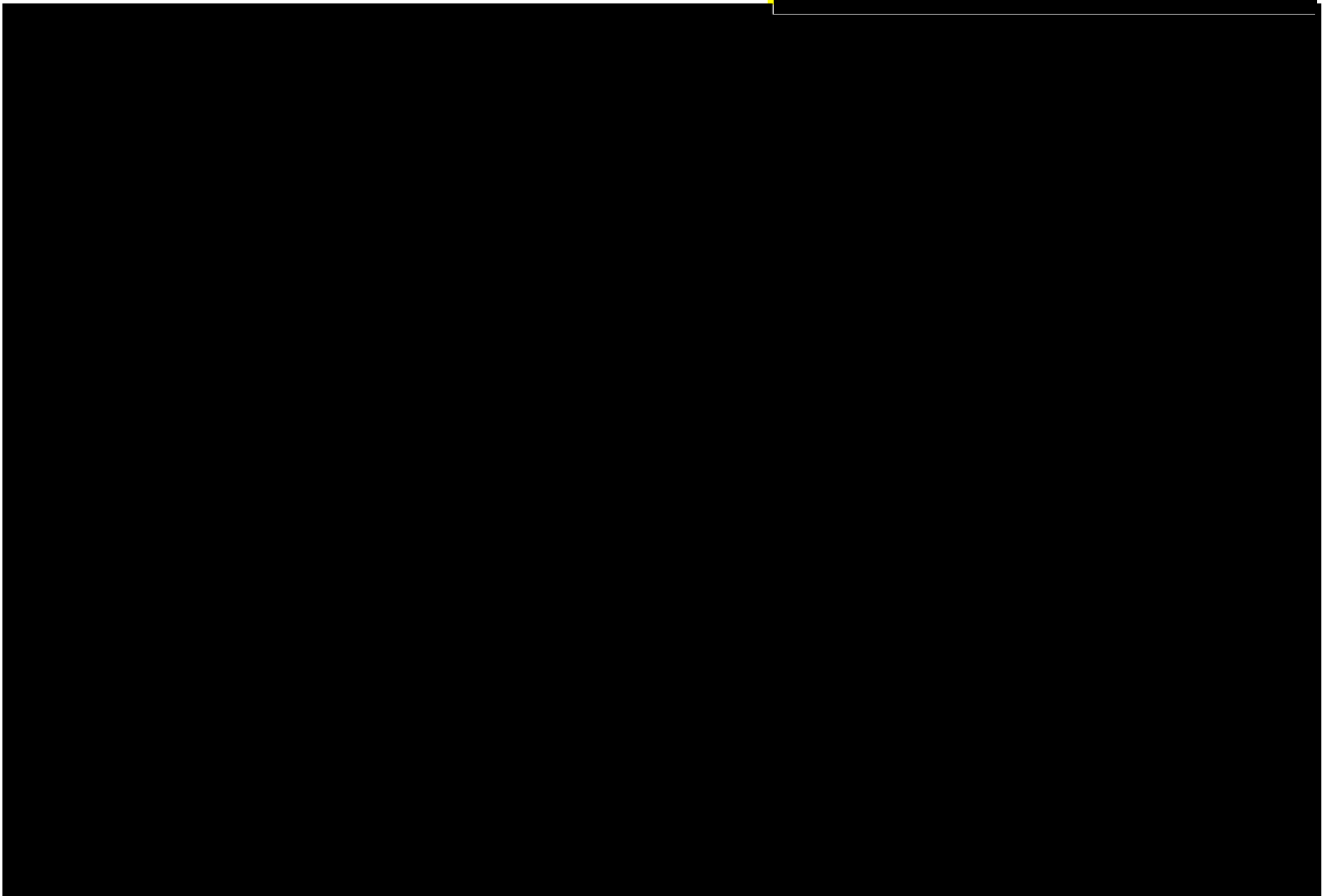
1.6.2.2 Software

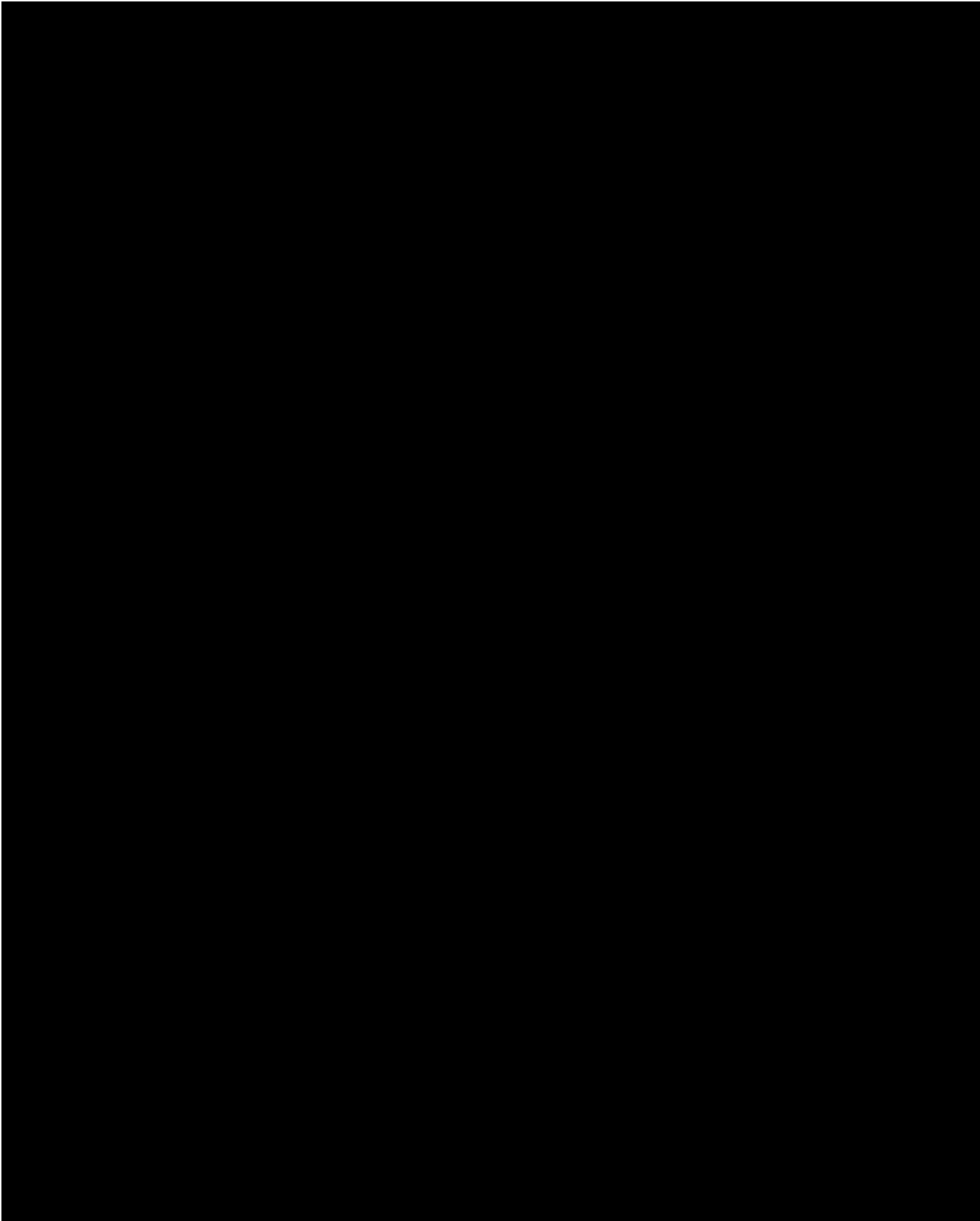


1.6.2.2.1 Operations



1.6.3 INIT's Highly-Configurable Smart Vending Machine





1.6.3.1 General Capabilities

For clarification, the INIT VENDstation and the acronym FFVM are one and the same. Likewise, the INIT VENDmobile and the acronym LFVM are one and the same. When referring to the functionality of a specific Vending Machine, the acronym or the INIT tradename (VENDstation or VENDmobile) will be used. Otherwise, the term VM will refer to both Model Vending Machines as referred in the RFP.

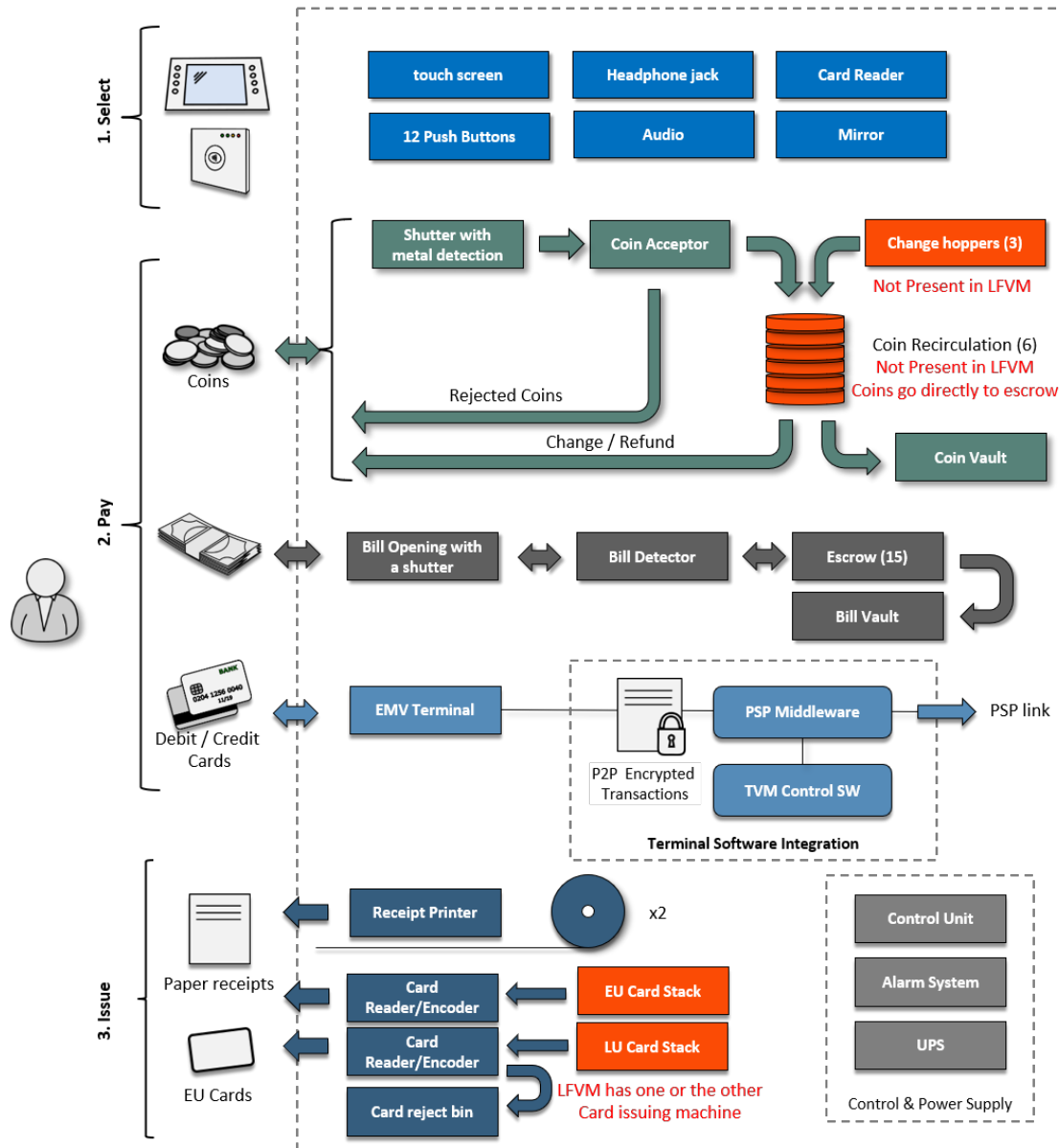
In keeping with the preferred goal of a common platform approach, the internal components of the VM's, where applicable, are essentially the same and can be interchanged between each type of VM seamlessly. The table below details the components between each VM which are interchangeable:

INTERNAL COMPONENTS	FFVM	LFVM
Controller (VENDpc + VENDpc extension)	Same	
Push Buttons	Same	
FEIG closed and open loop card reader	Same	
Coin handling Unit with Escrow but without change	Coin carousels that enable Change	Escrow for refunds, no possibility for change
Bill Handling Unit MEI SCR small version	SAME	
Bank Card Processing Unit - Ingenico iSelf	SAME	
1 x Double printers (2 paper rolls in total)	Printer unit is the same. Paper roll width 300mm. Sheet metal & mounting differs from LFVM.	Printer unit is the same. Paper roll width 130mm. Sheet metal & mounting differs from FFVM.
Smartcard Dispenser	Same	

In addition, INIT's cash and "no change given" VM variants allow the transit agencies to pick the right variant at each station. The logic flow of the transaction for both VM's is the same. The following figures depict the easy three-step process the VM follows during the patron transaction. The only difference is the removal of the Coin recirculation components necessary for issuing change.

VM Configurations as shown for the FFVM

Notes for LVFM configuration are detailed in Orange

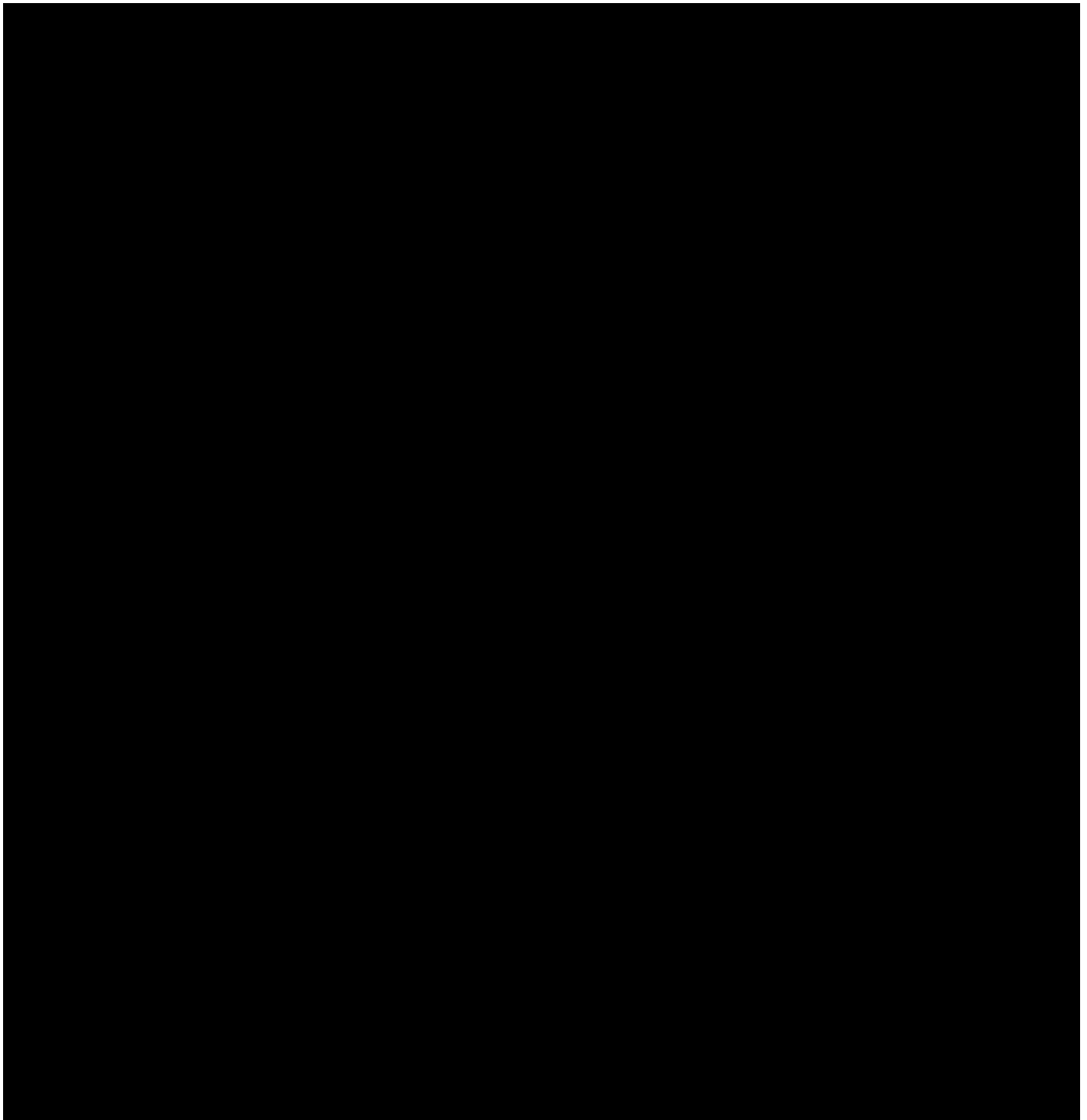


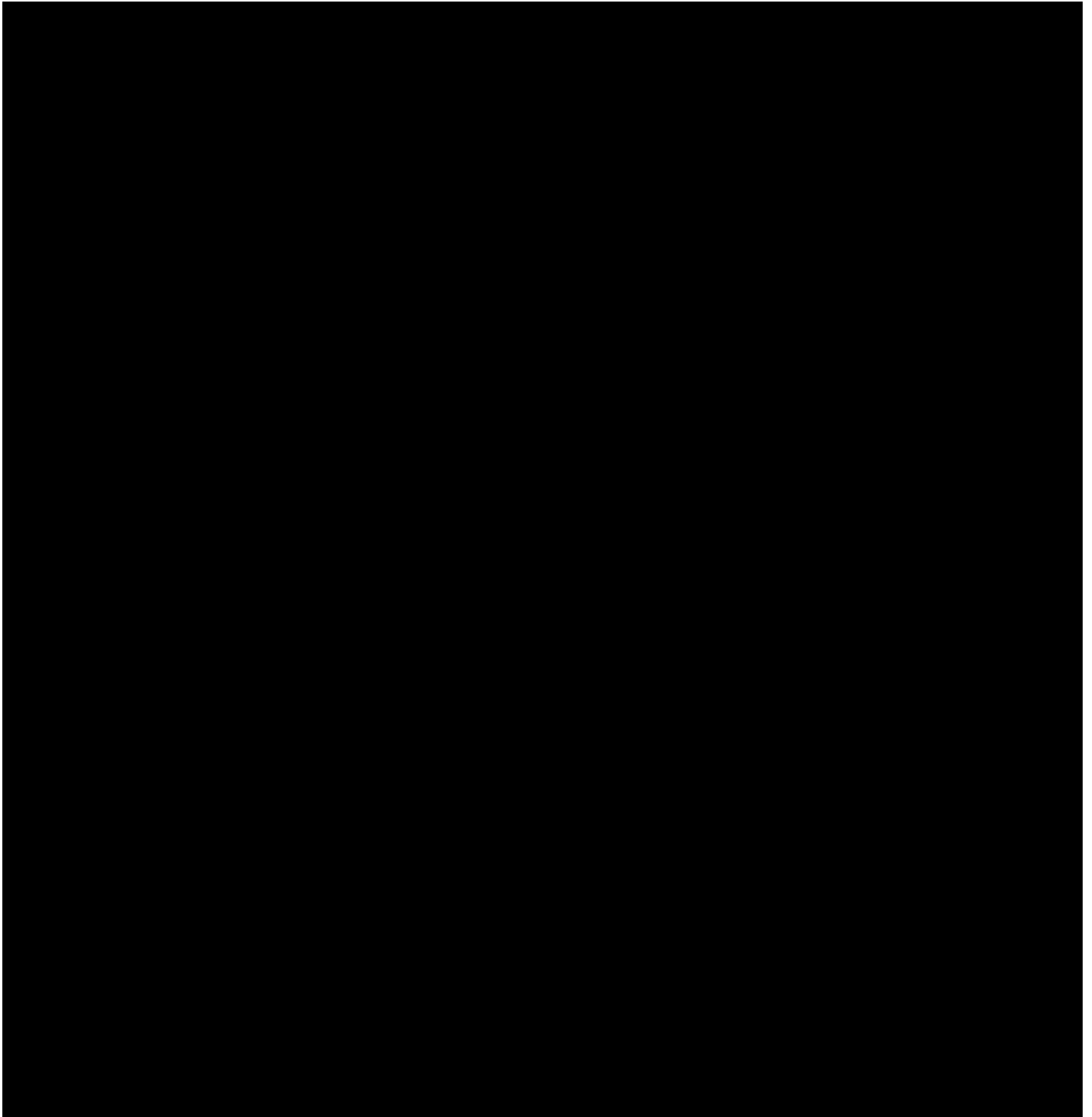
VM configurations

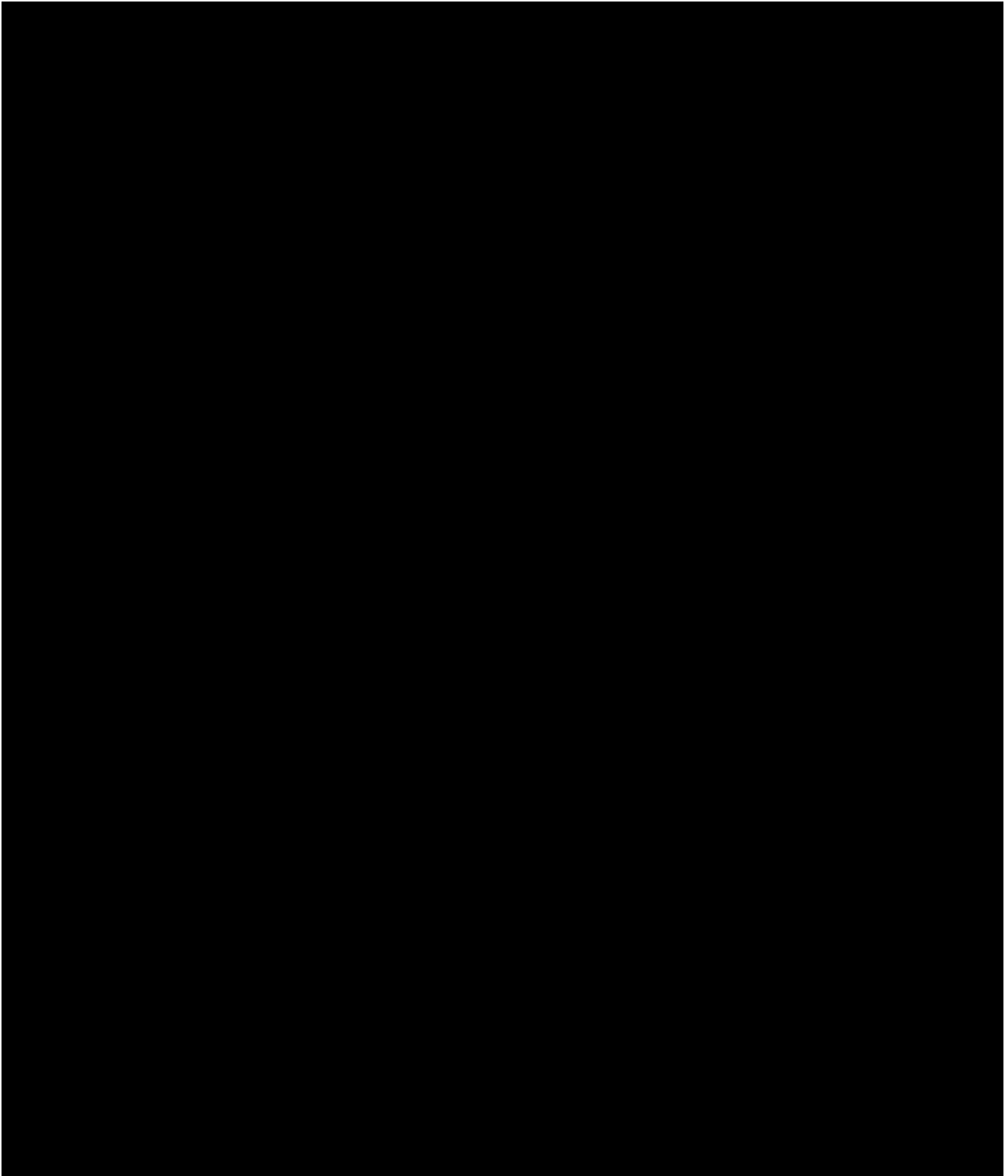
1.6.3.2 Hardware

The following chapters focus on the INIT VM's hardware.

1.6.3.2.1 Enclosure

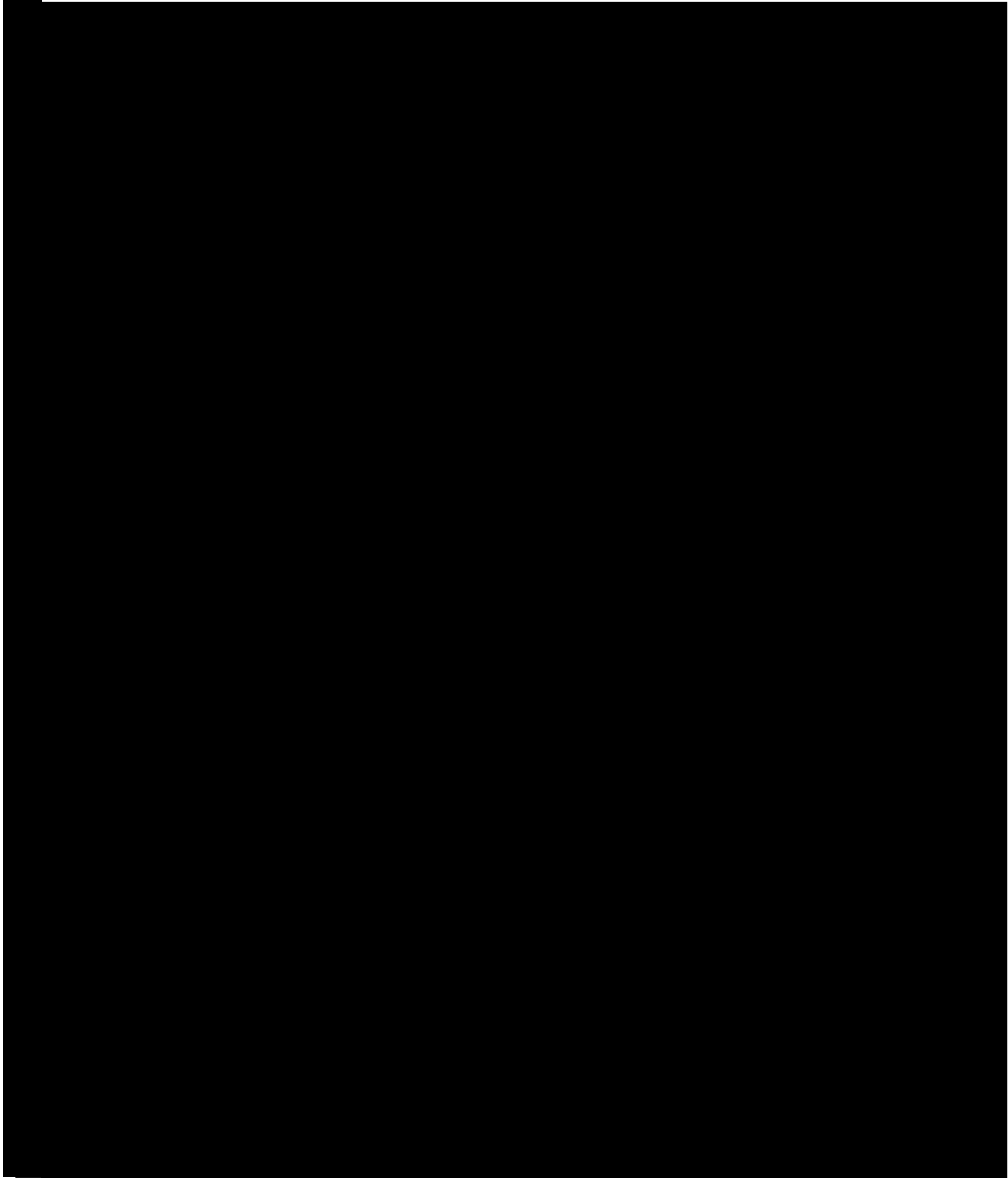


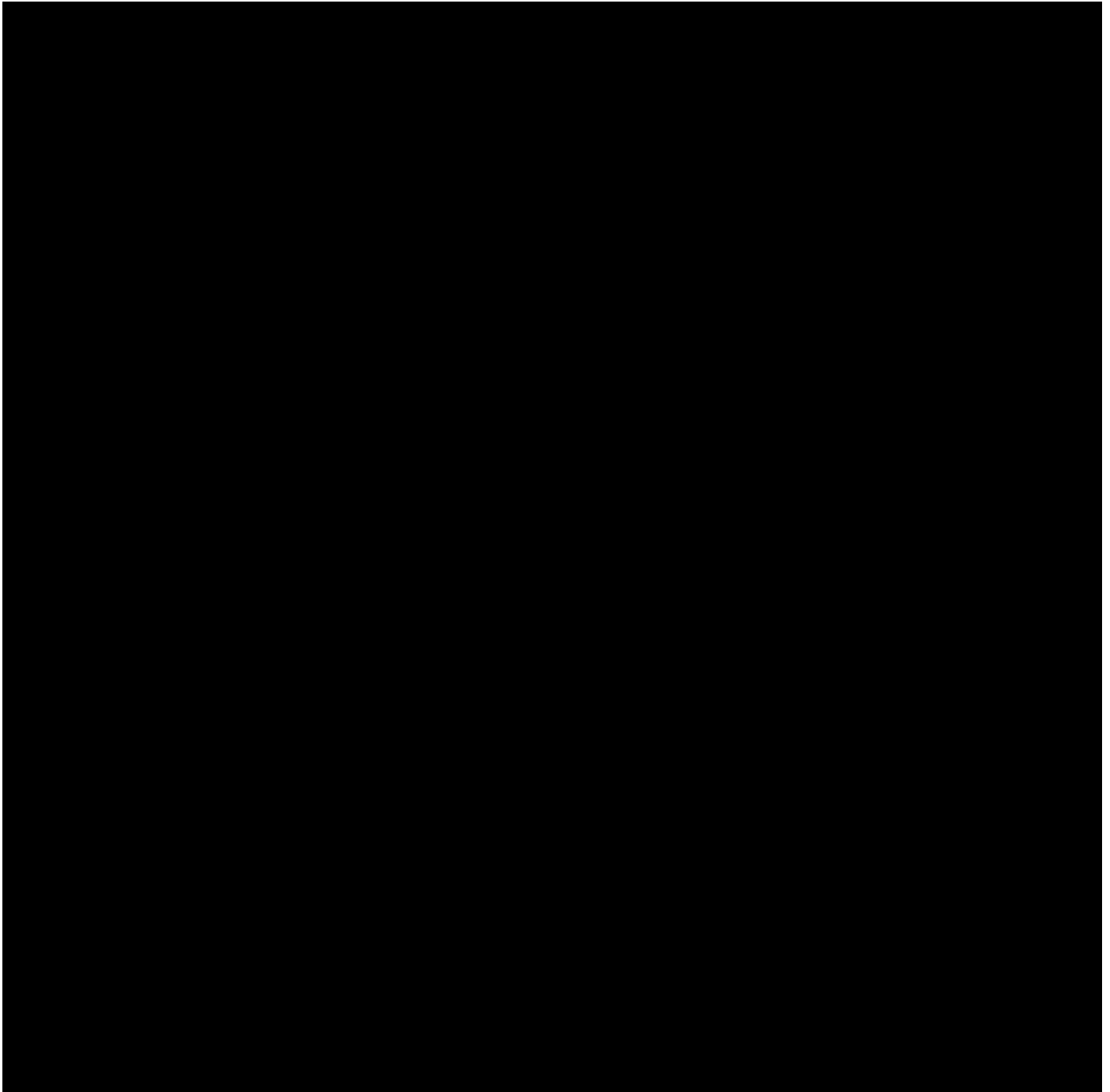


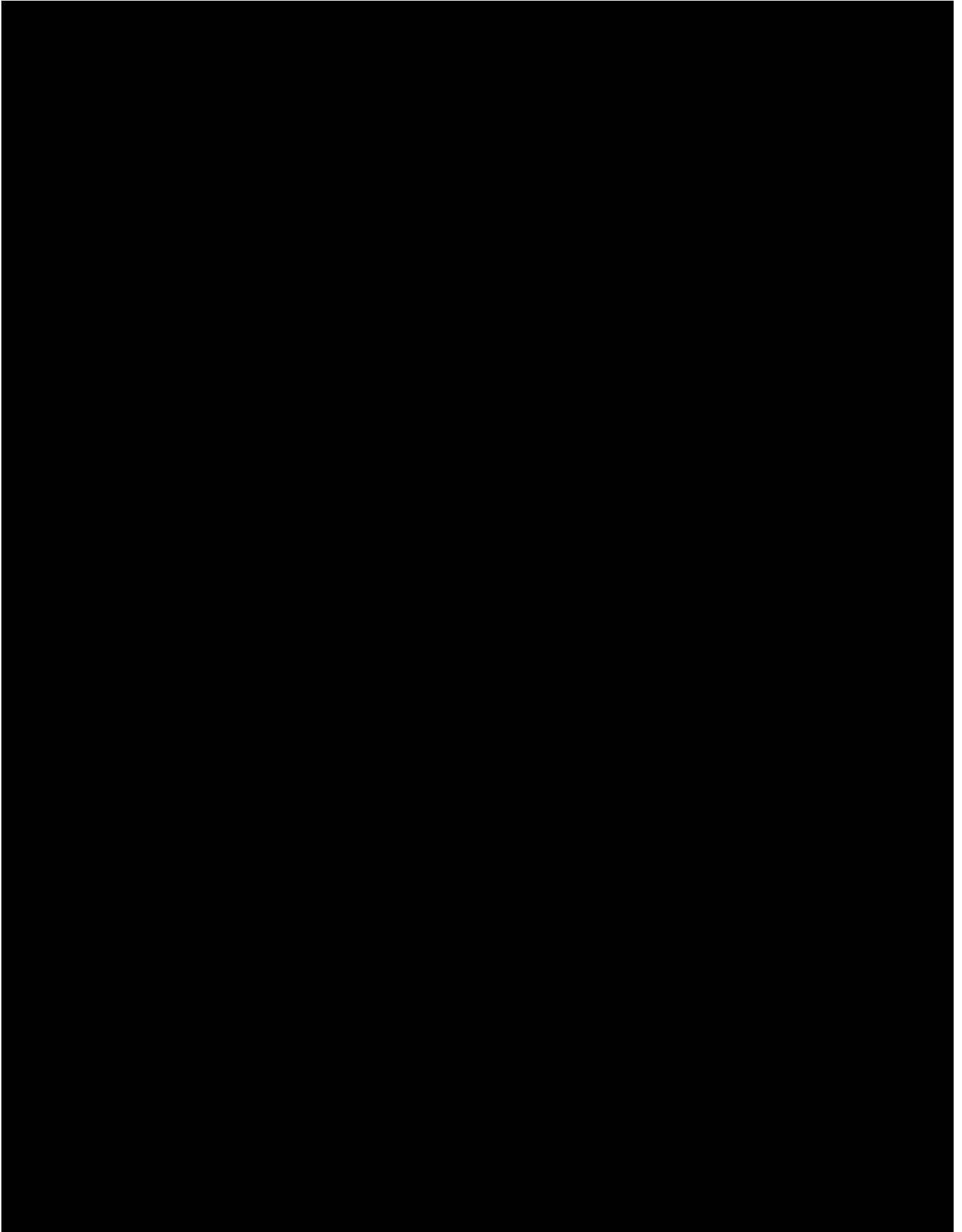


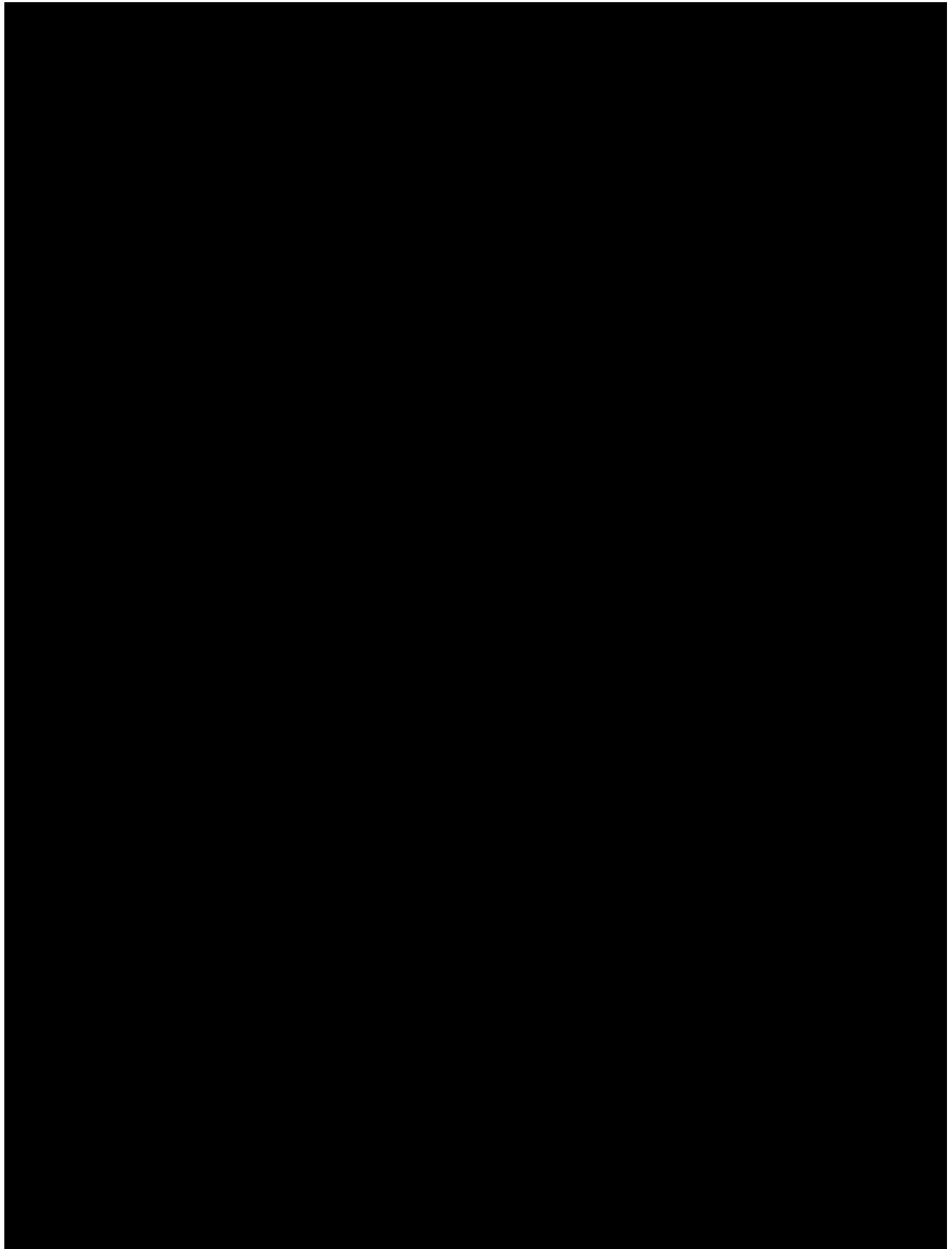


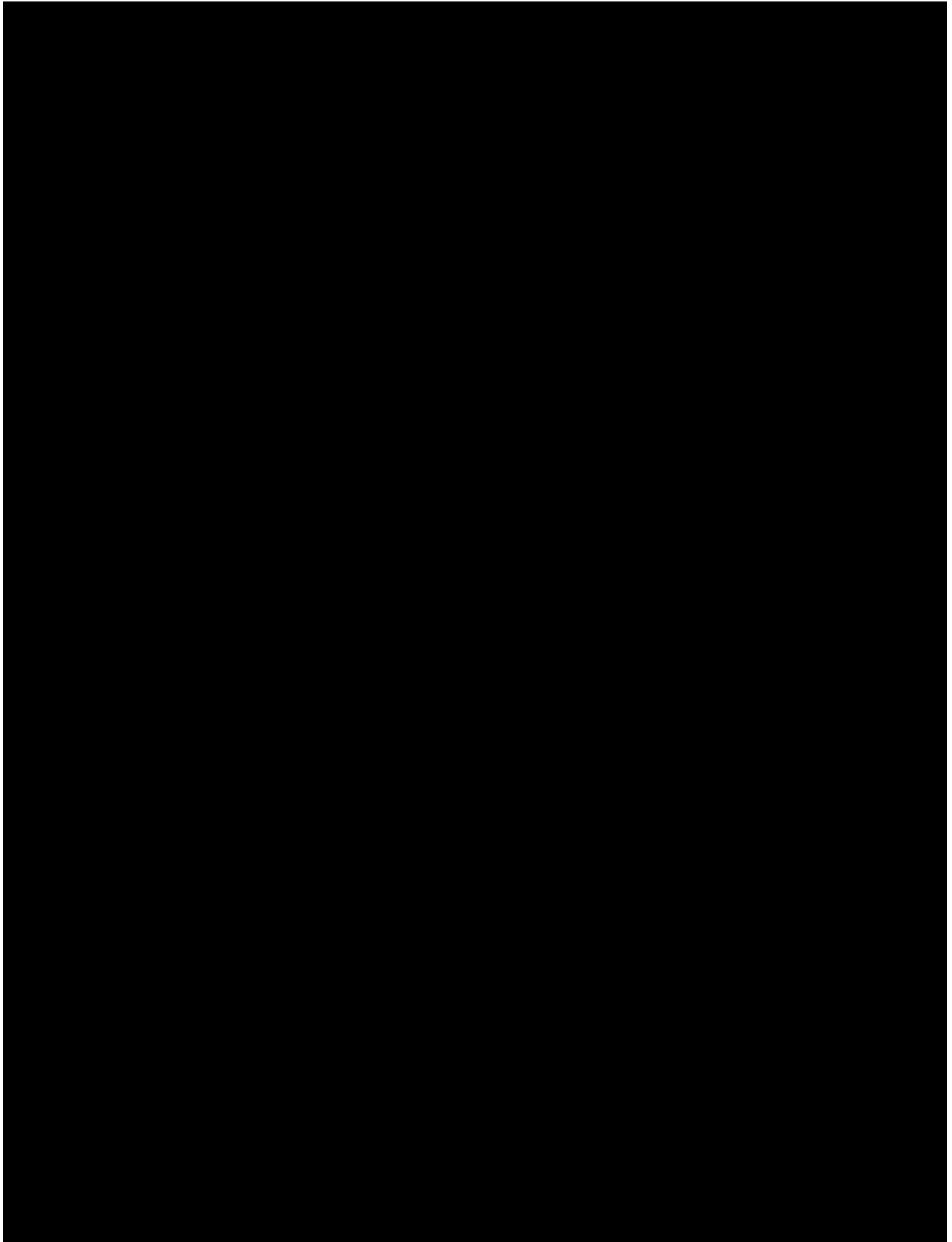
1.6.3.2.2 Modular Design



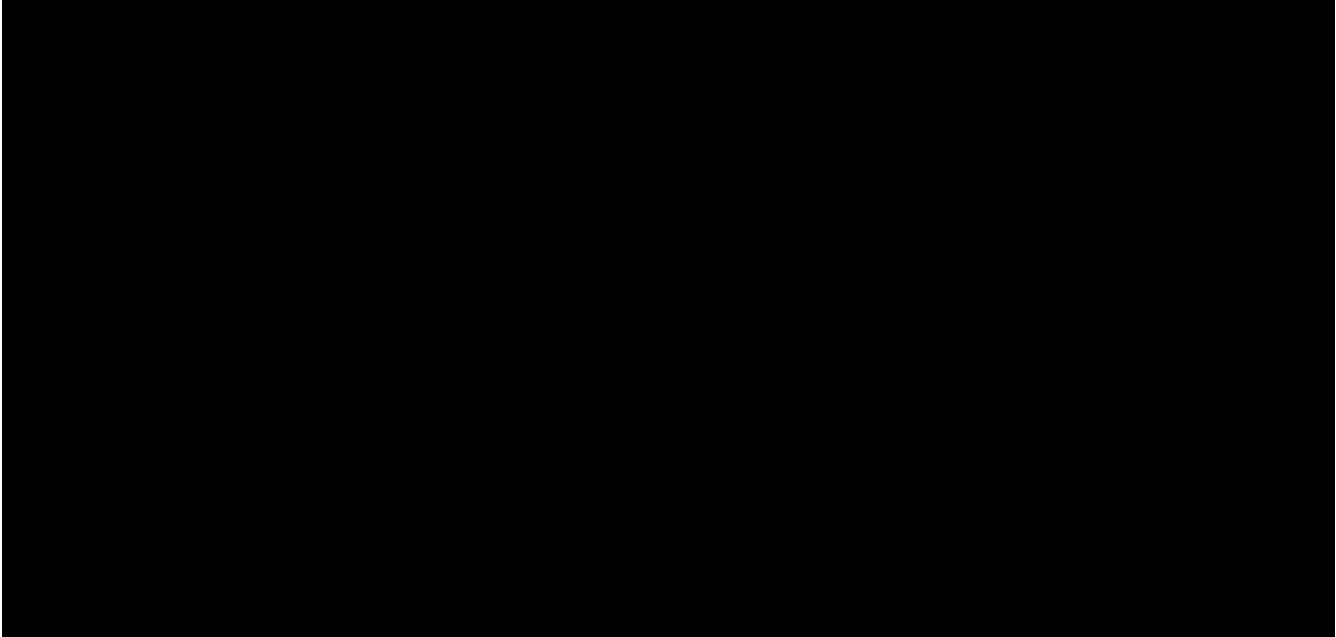




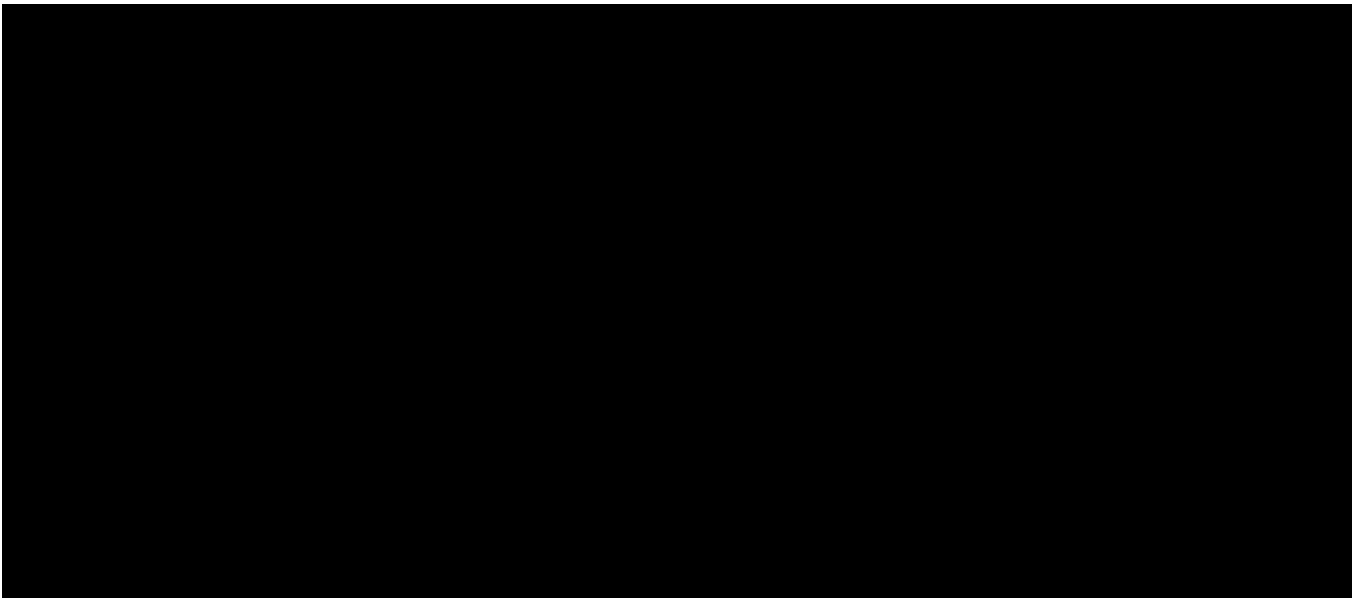


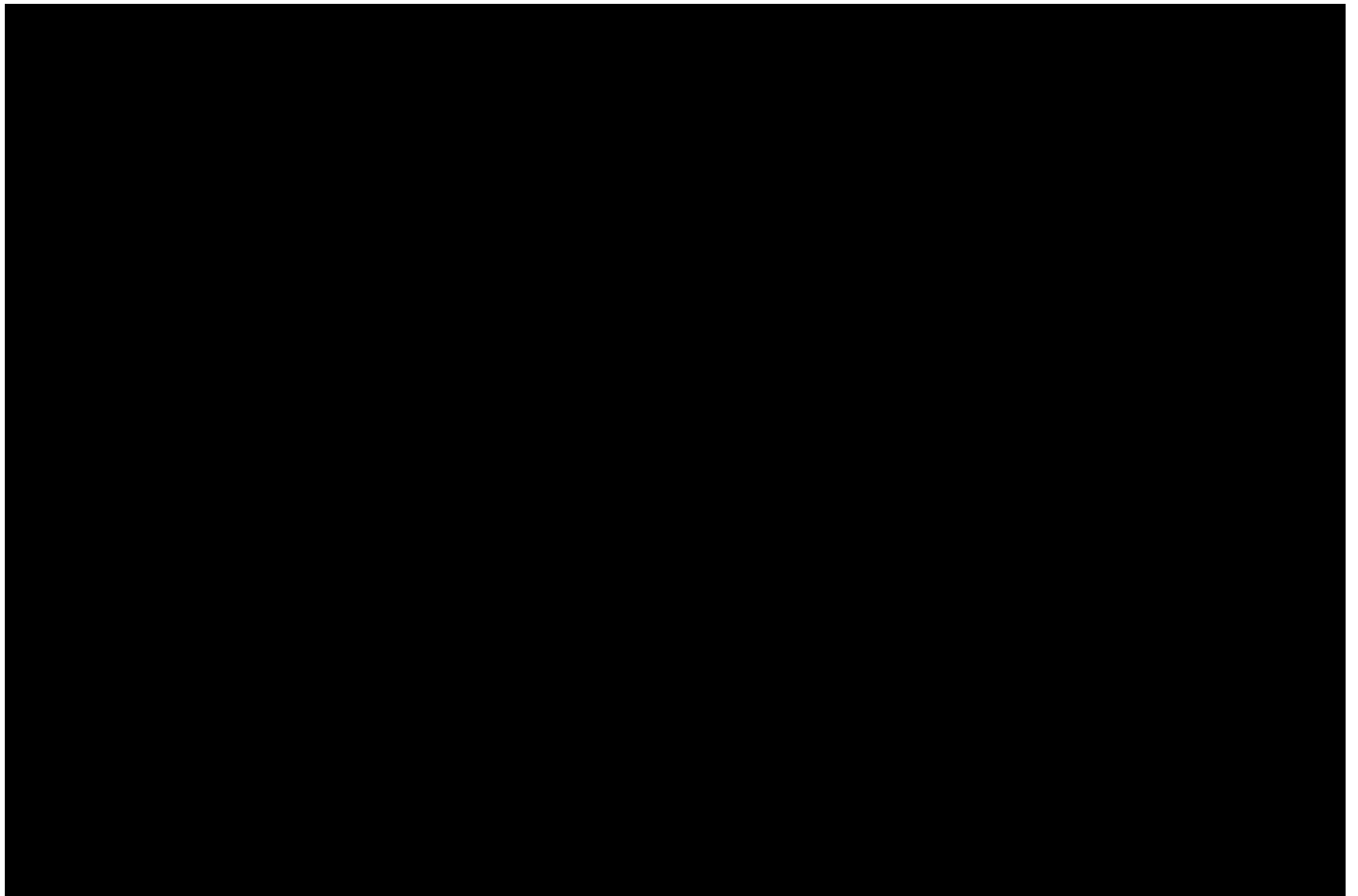


1.6.3.2.3 Display



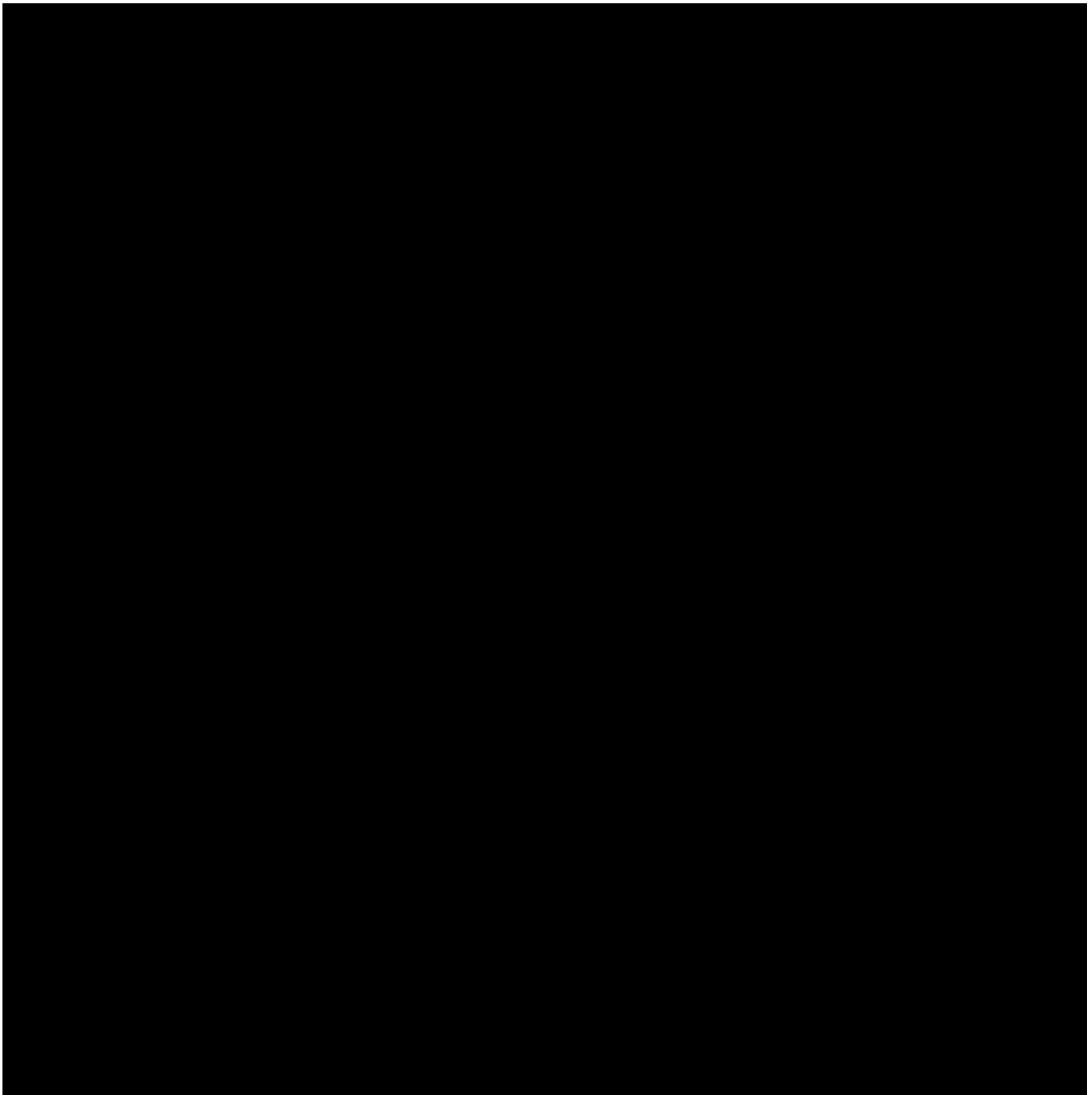
1.6.3.2.4 Bill Handling Unit

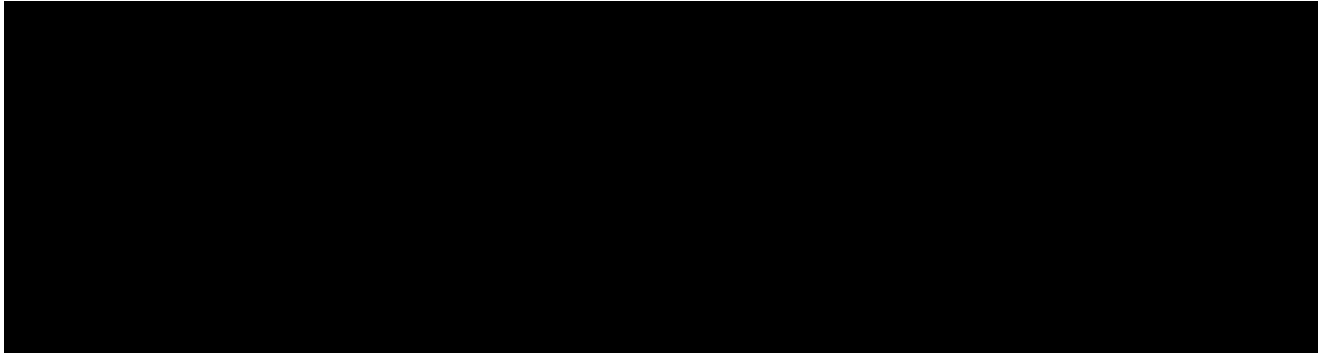




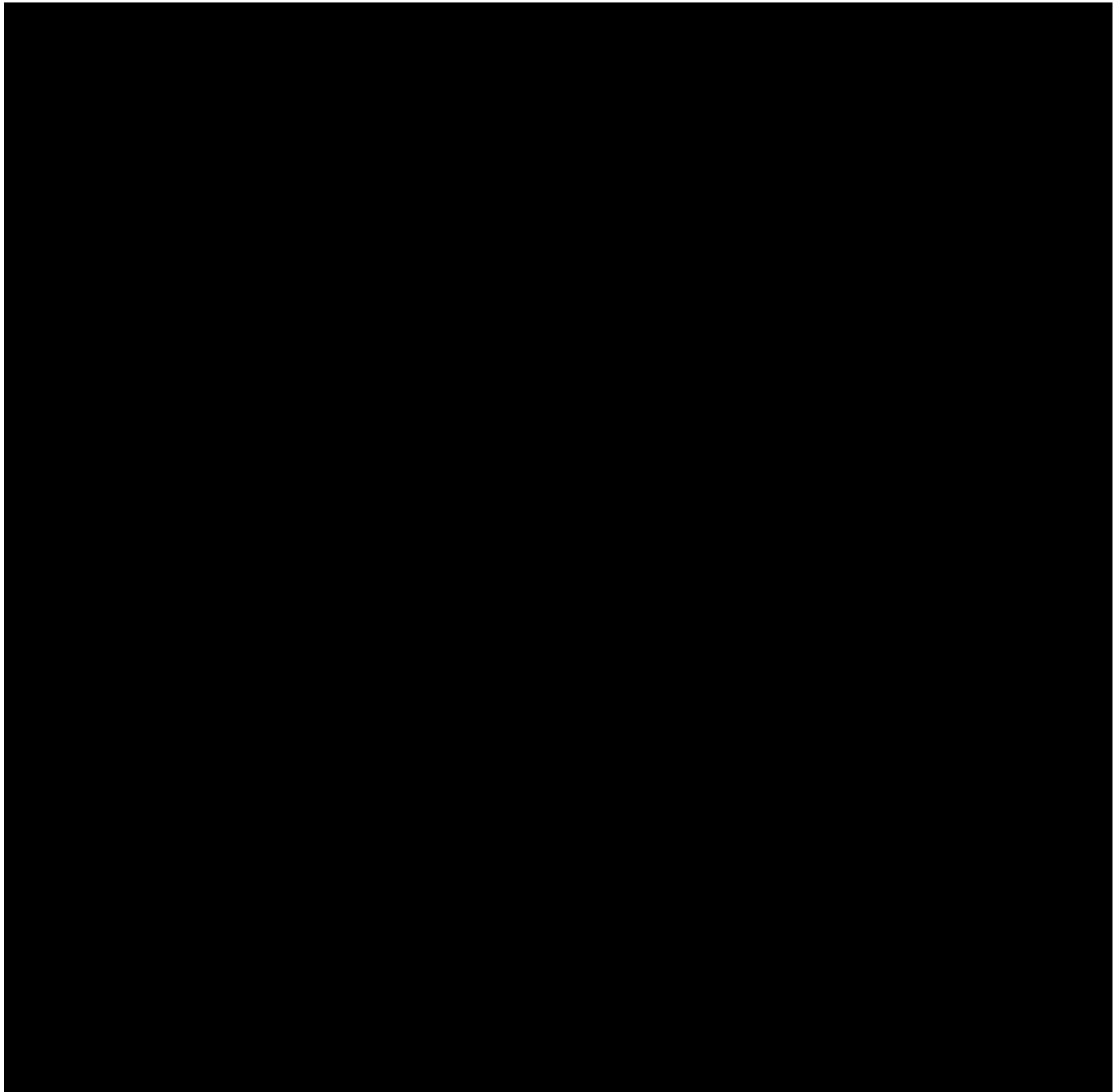


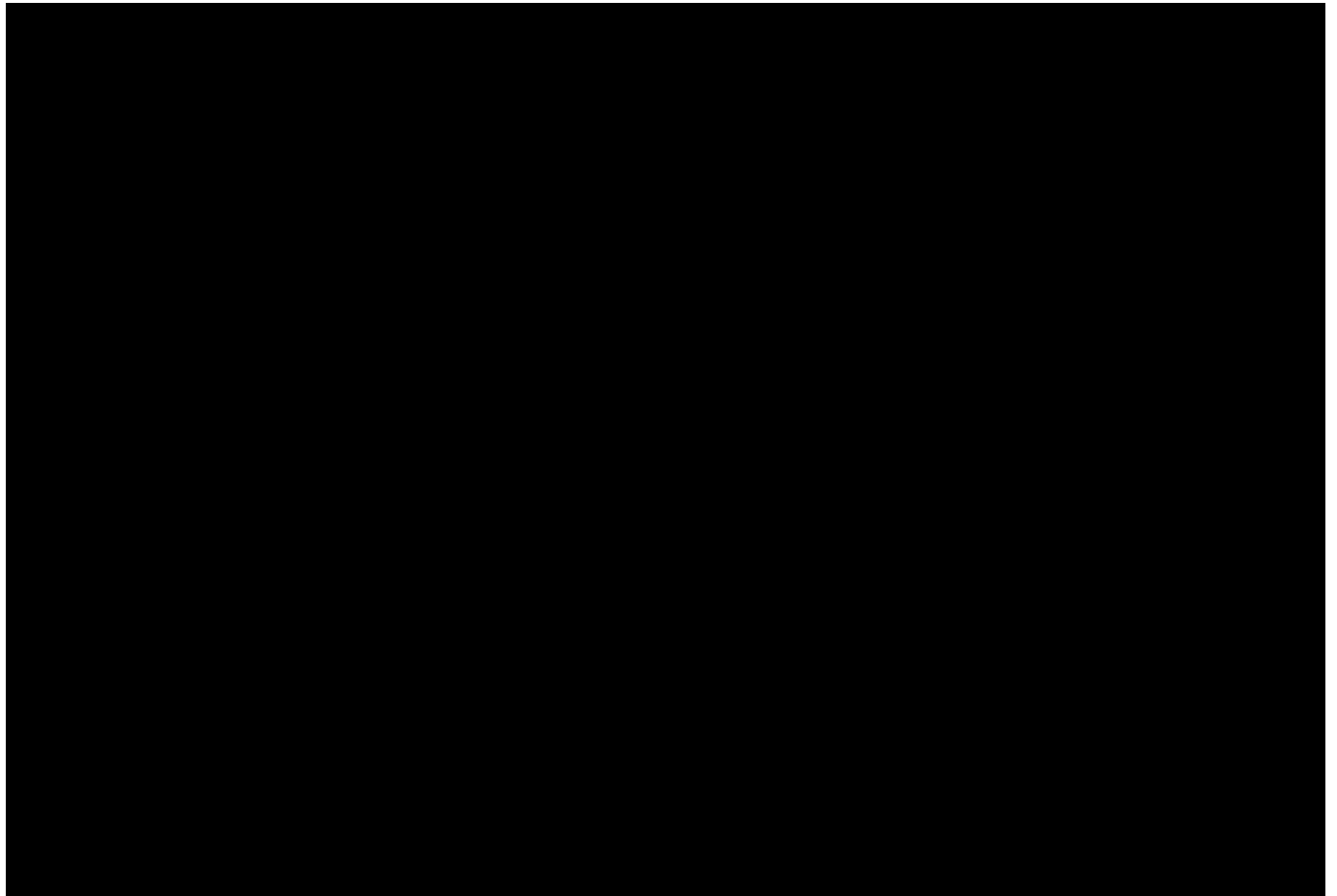
1.6.3.2.5 Coin Handling Unit

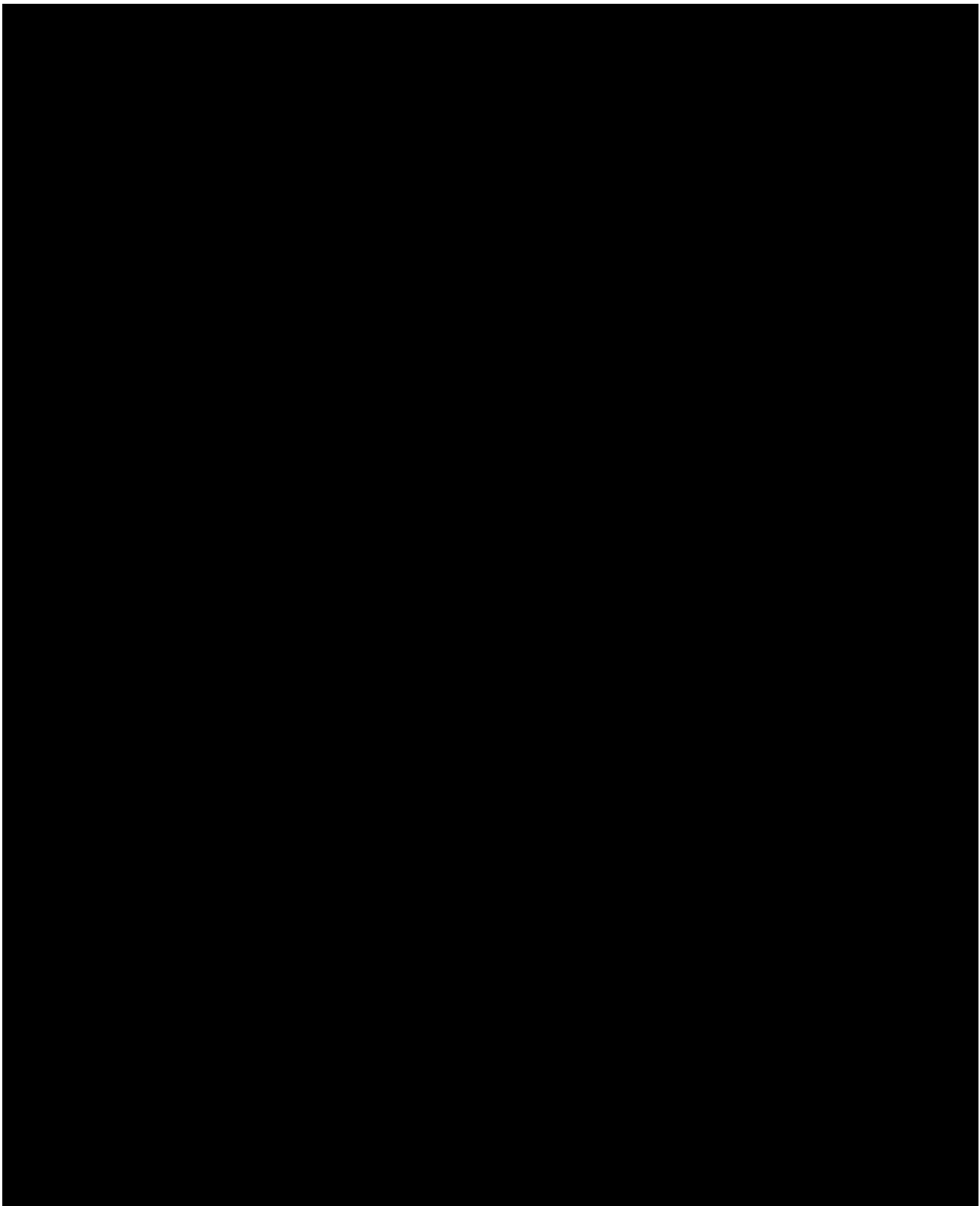




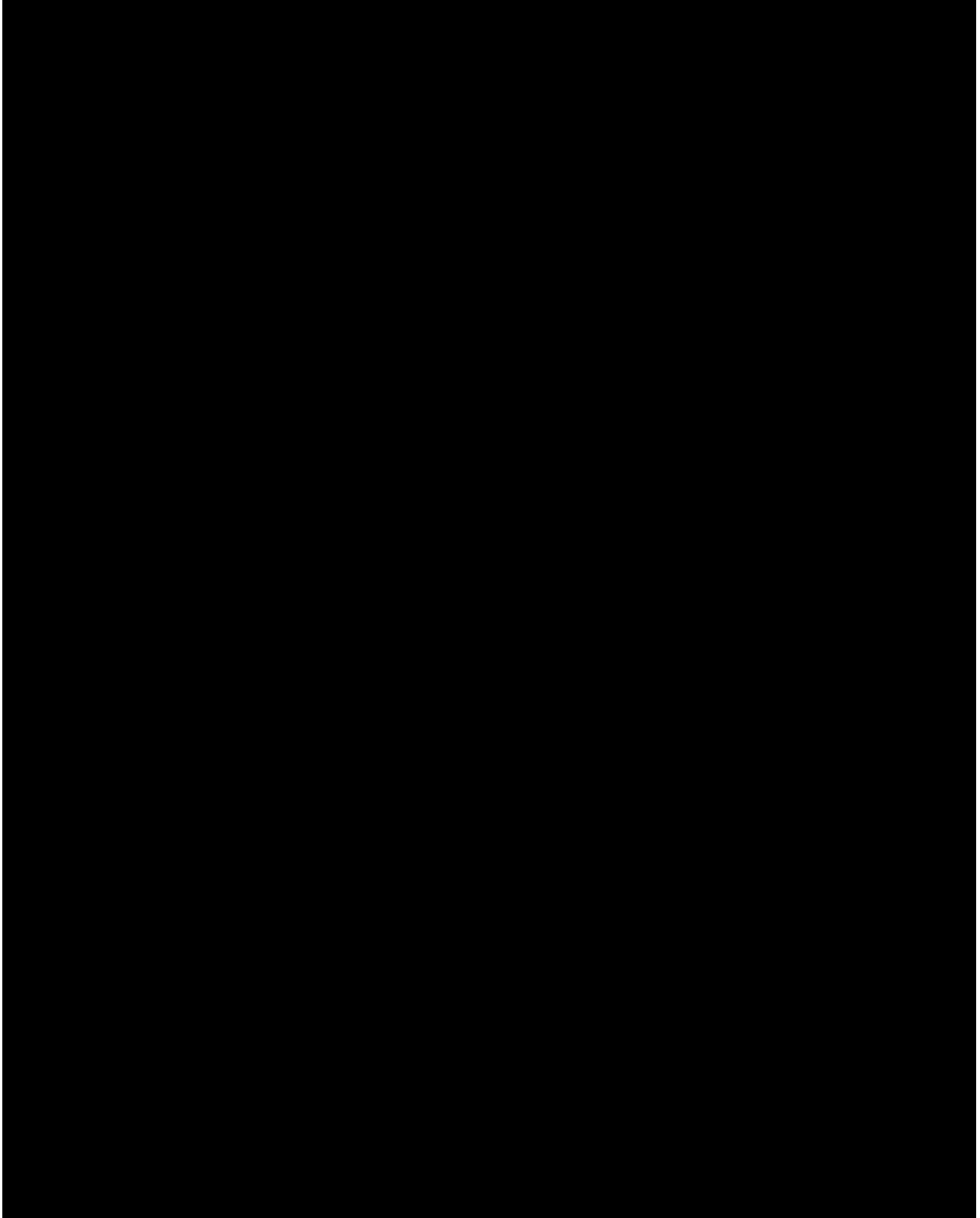
1.6.3.2.6 Bank Card Processing Unit (BCPU)



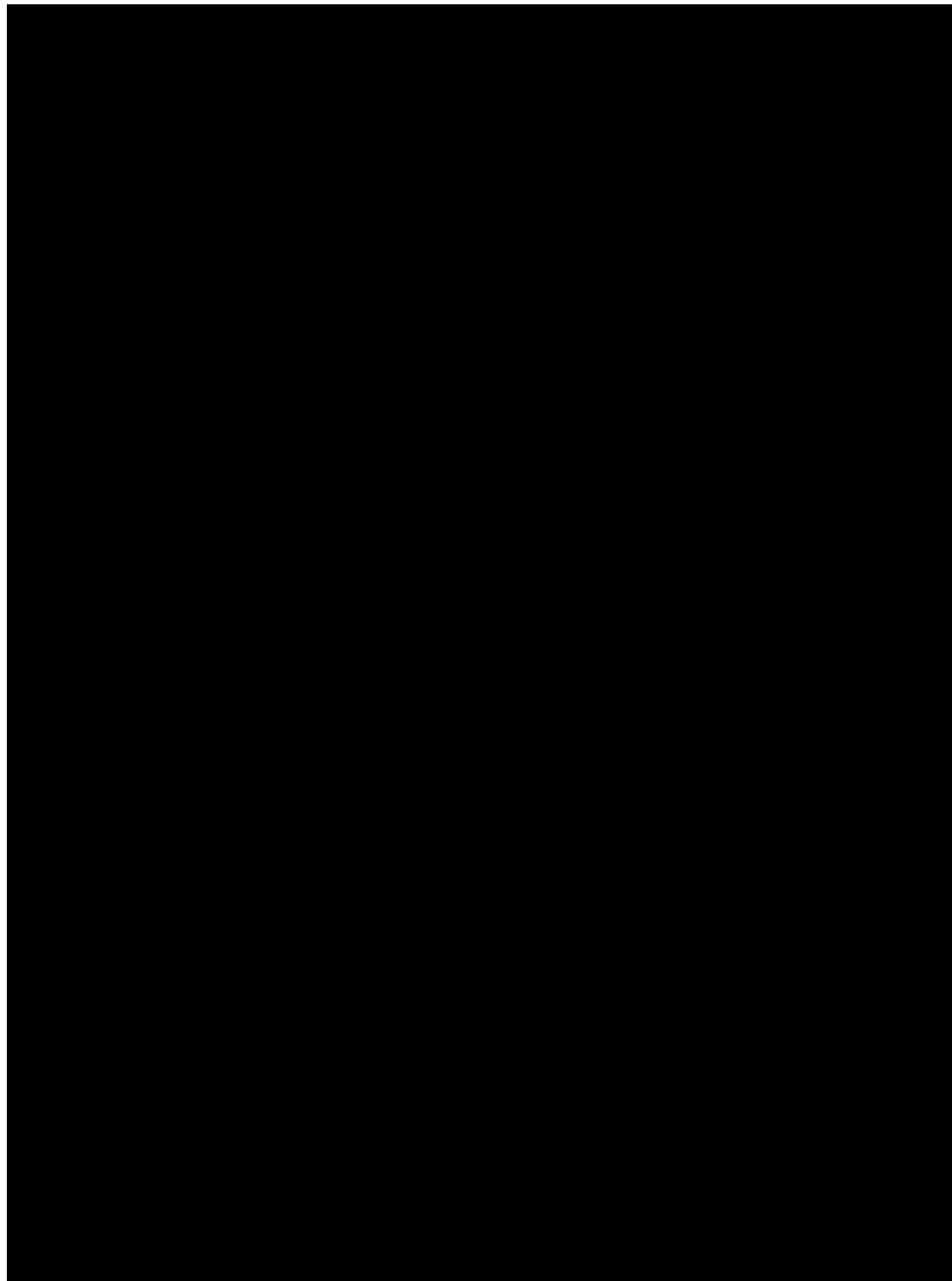


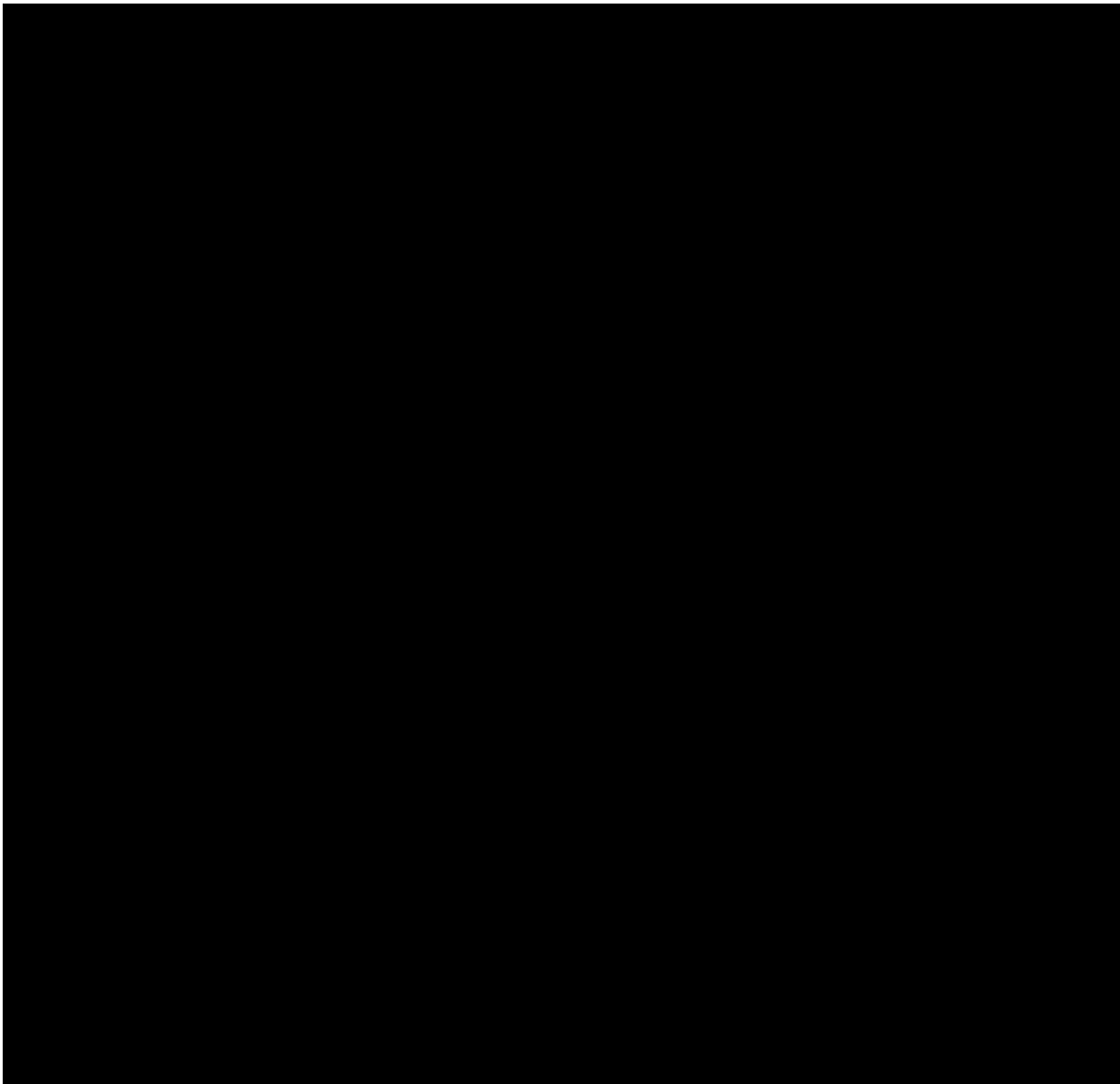


1.6.3.2.7 Smart Card Encoder / Dispenser

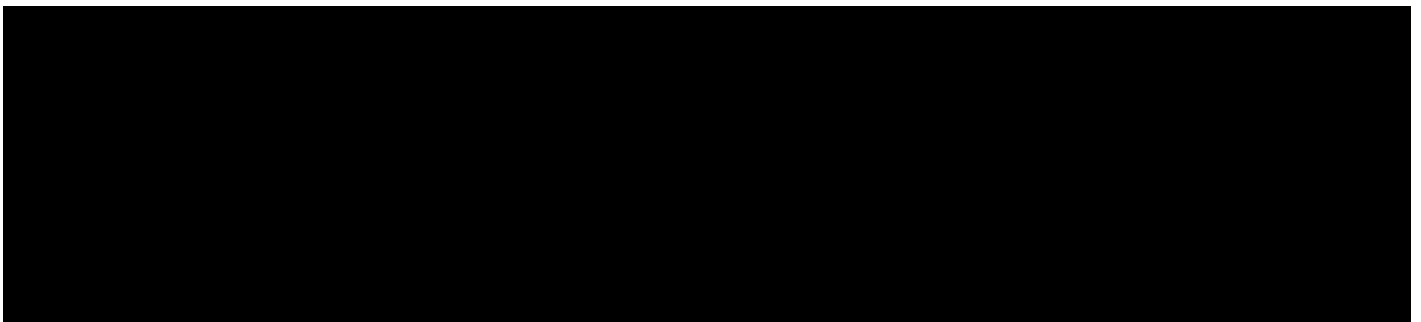


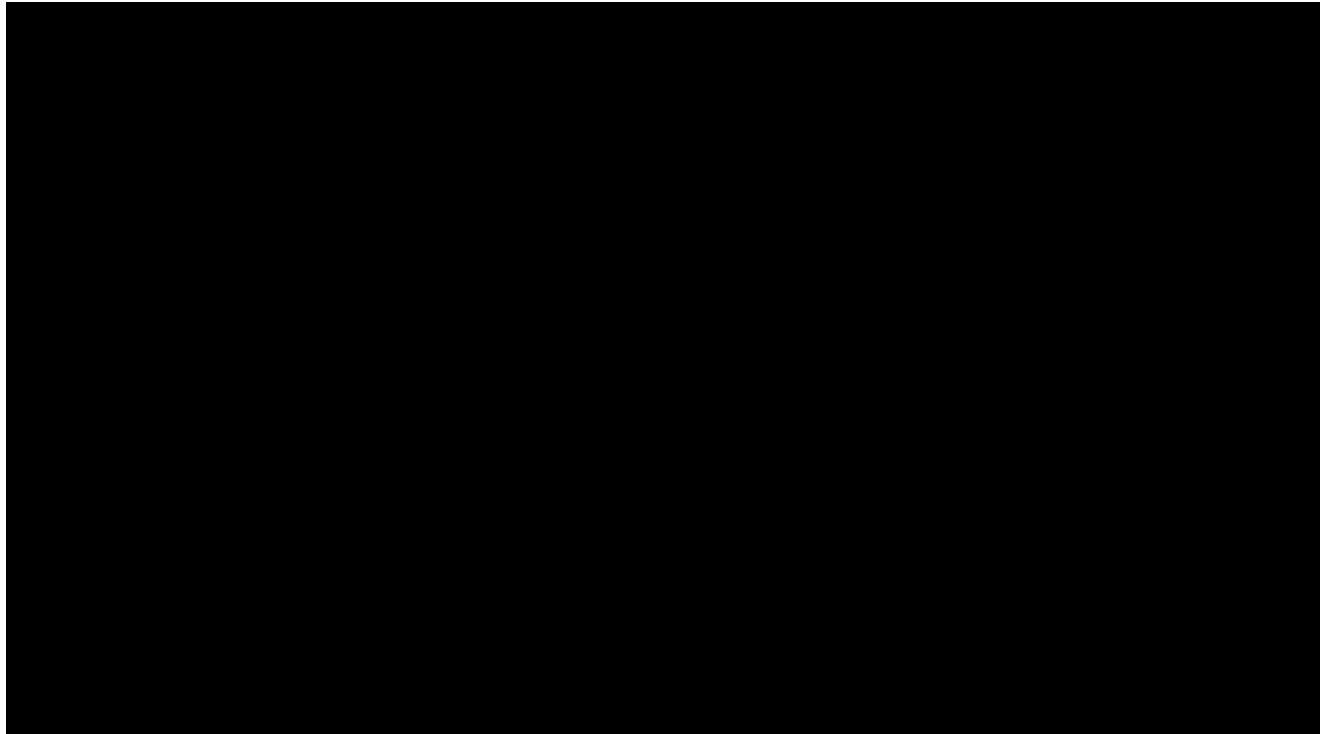
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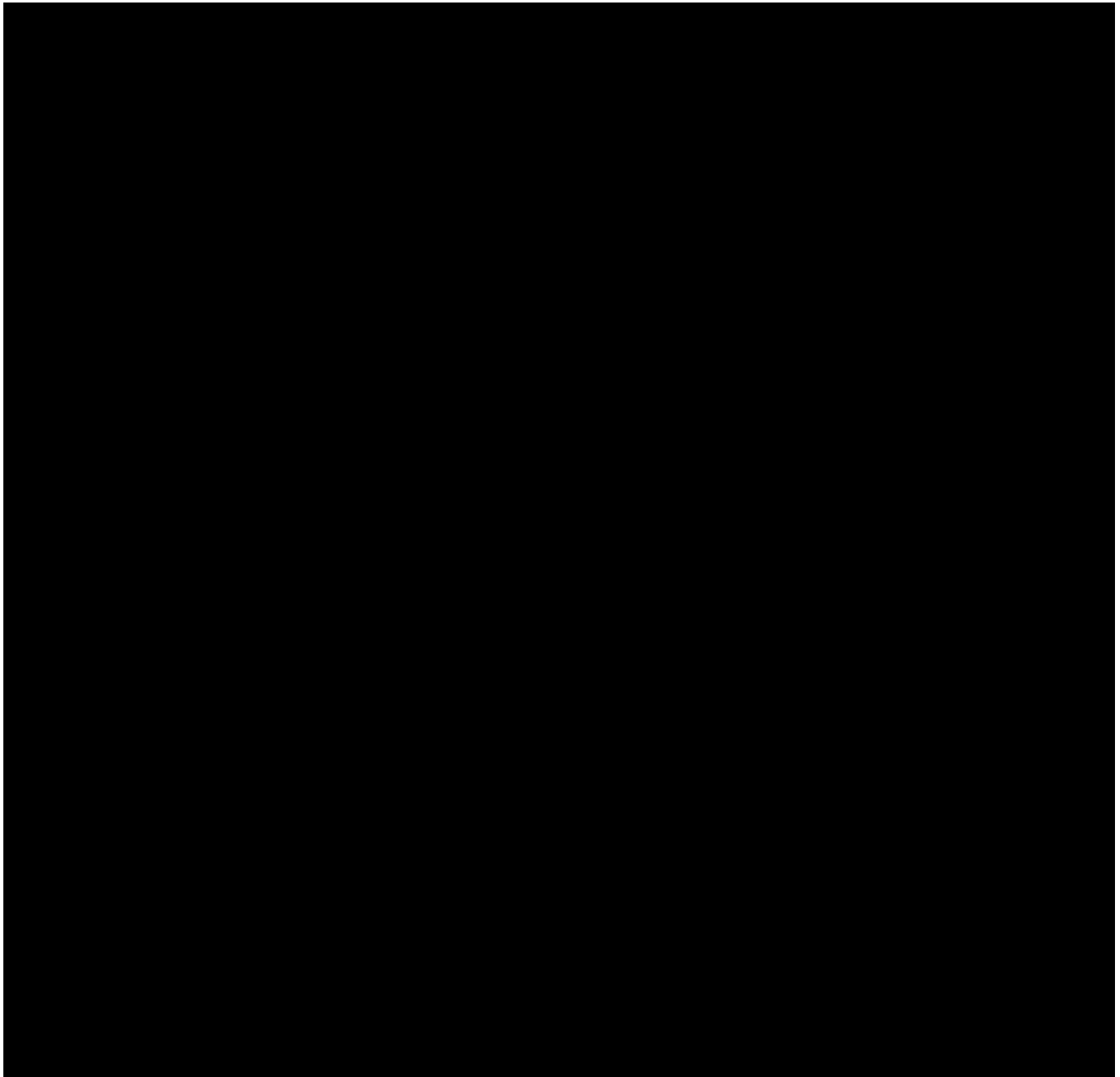




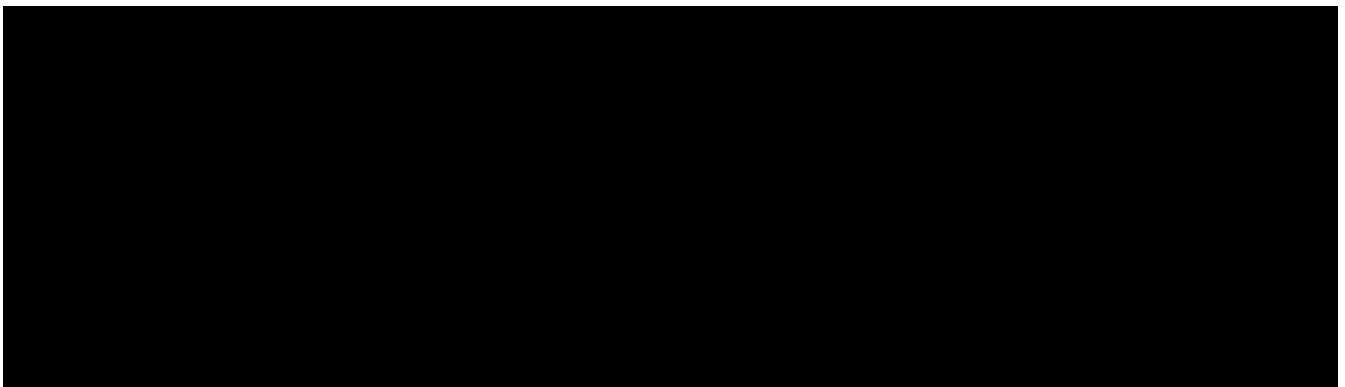
1.6.3.2.8 Smart Card Reader

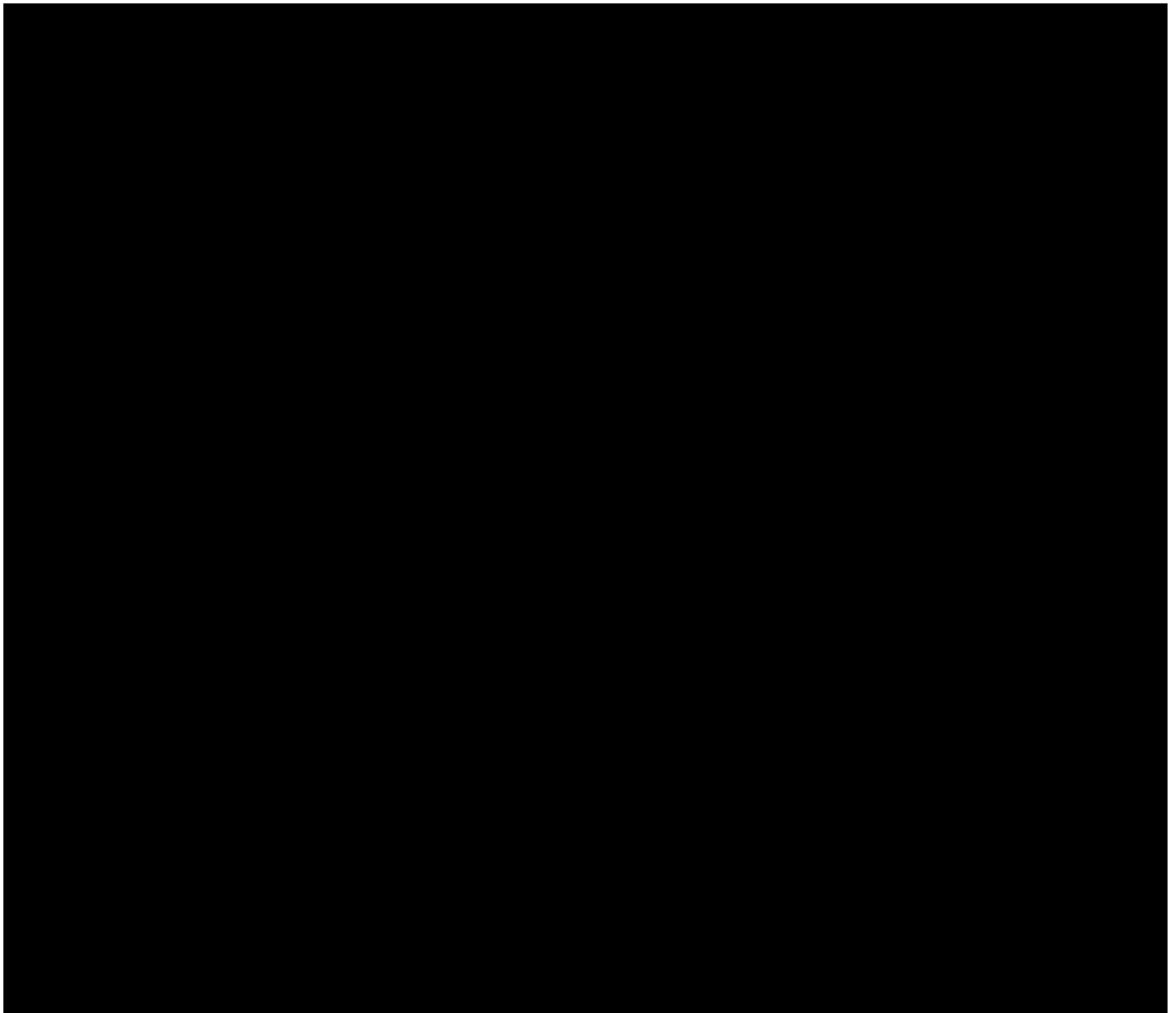


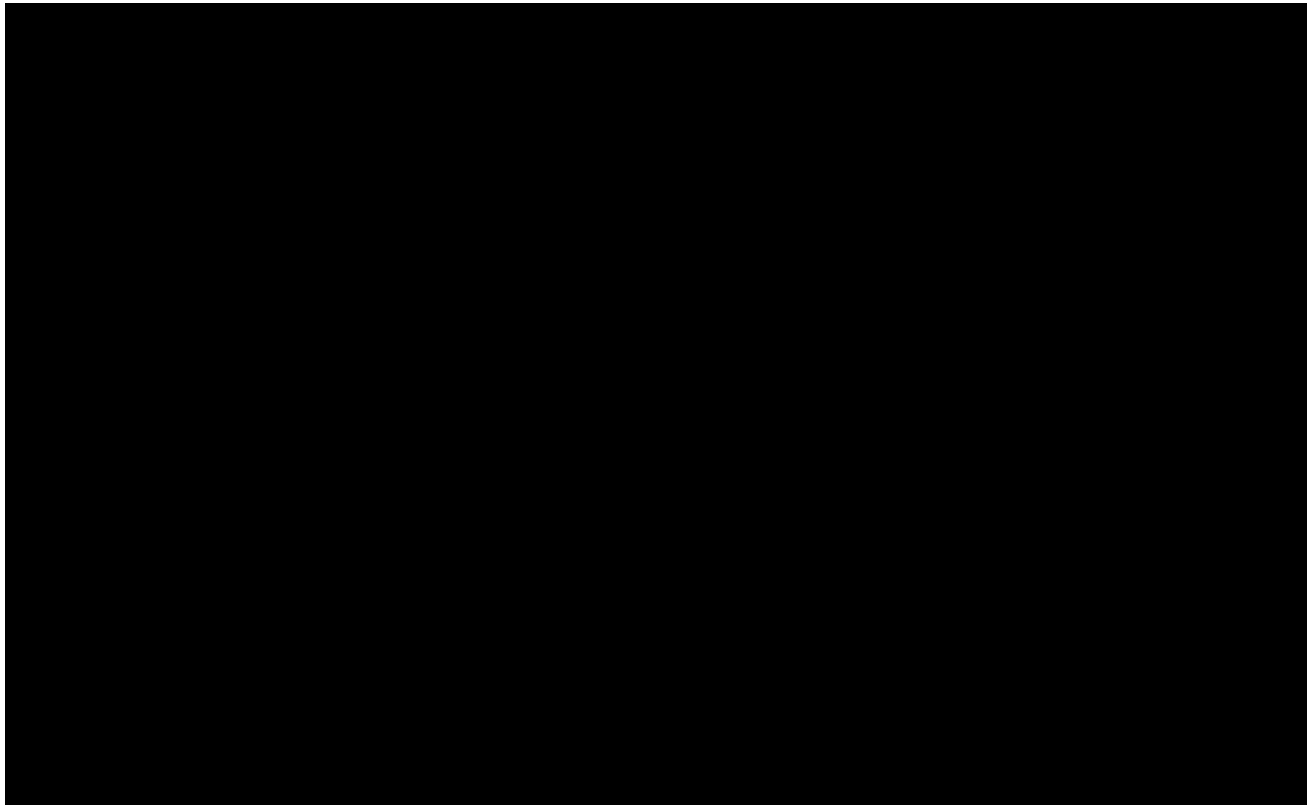




1.6.3.2.9 Receipt Printer

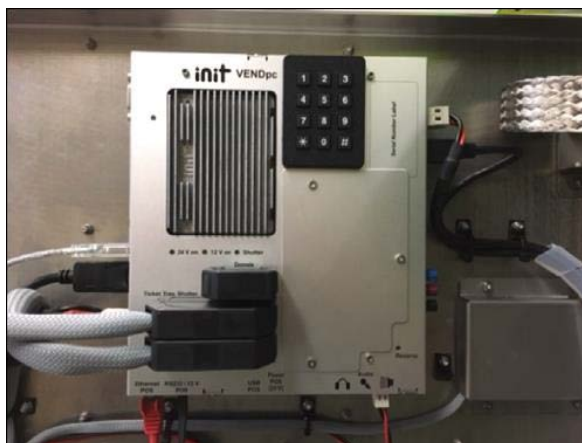






1.6.3.2.10 Controller (VENDpc)

The control unit consists of 2 parts; The VENDpc is a PC based computer, which is controlling all other components in the TVM and the VENDpc Extension is connected to the VENDpc over and MLT-3 and USB interface. It controls all devices in the back of the housing. The VENDpc Extension has a switch for start and shutdown.



VENDpc and VENDpc extension

The central processor is an Intel Atom Z510PT (Silverthorne) and has the following characteristics:

- 32-Bit x86 Processor, 1.1GHz
- 512 KB L2-Cache
- MMX, SSE, SSE2, SSE3, SSSE3, XD-Bit
- 45nm manufacturing process
- The processor is hard soldered on the PCB and guarantees maximal reliability and vibration resistance
- The Intel Z510PT needs the chipset Intel US15-WPT (Poulsbo), which is directly soldered, left of the processor.
- 1024 MB RAM (DDR2-RAM) is directly soldered onto the PCB, to guarantee maximal reliability, and shock and vibrations resistance.

The device has two microSD card slots. Each card slot meets the SDHC-standard and can accept cards up to 32 GB. The slots are equipped with 1 GB cards.

1.6.3.2.11 UPS

As uninterruptible Power Supply (UPS), INIT uses the COTS UPS module UPSI-B-2410 from Bicker Electronics.

UPSI-B-2410

24 V DC / 10 A

- **Battery monitoring**
- **Online technology**
- **Battery pack BP-2425C also for -30...+70 °C!**

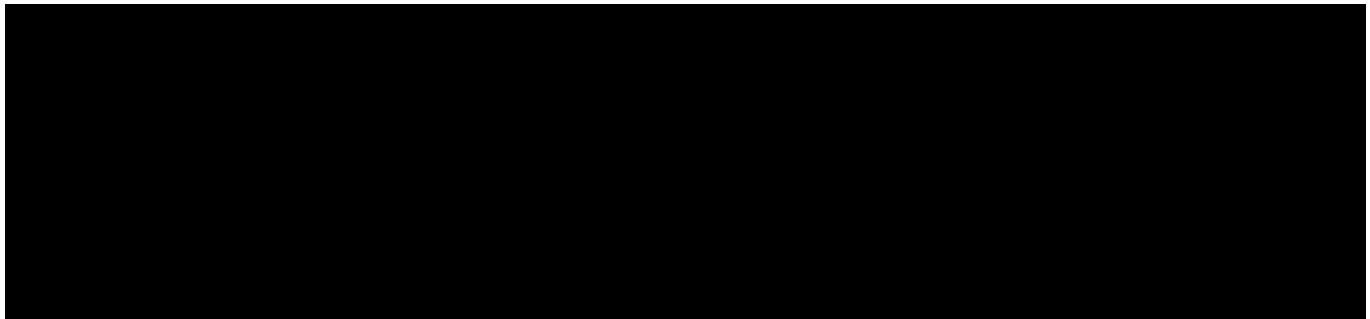
The UPSI-B-2410 buffers DC supplied systems in ambient temperatures where other UPS fail. Adequate batteries are included. Online technology guarantees interrupt-free power. Micro-processor controlled charging and an active battery check provides a long battery life. Typical application areas are automation and automotive.

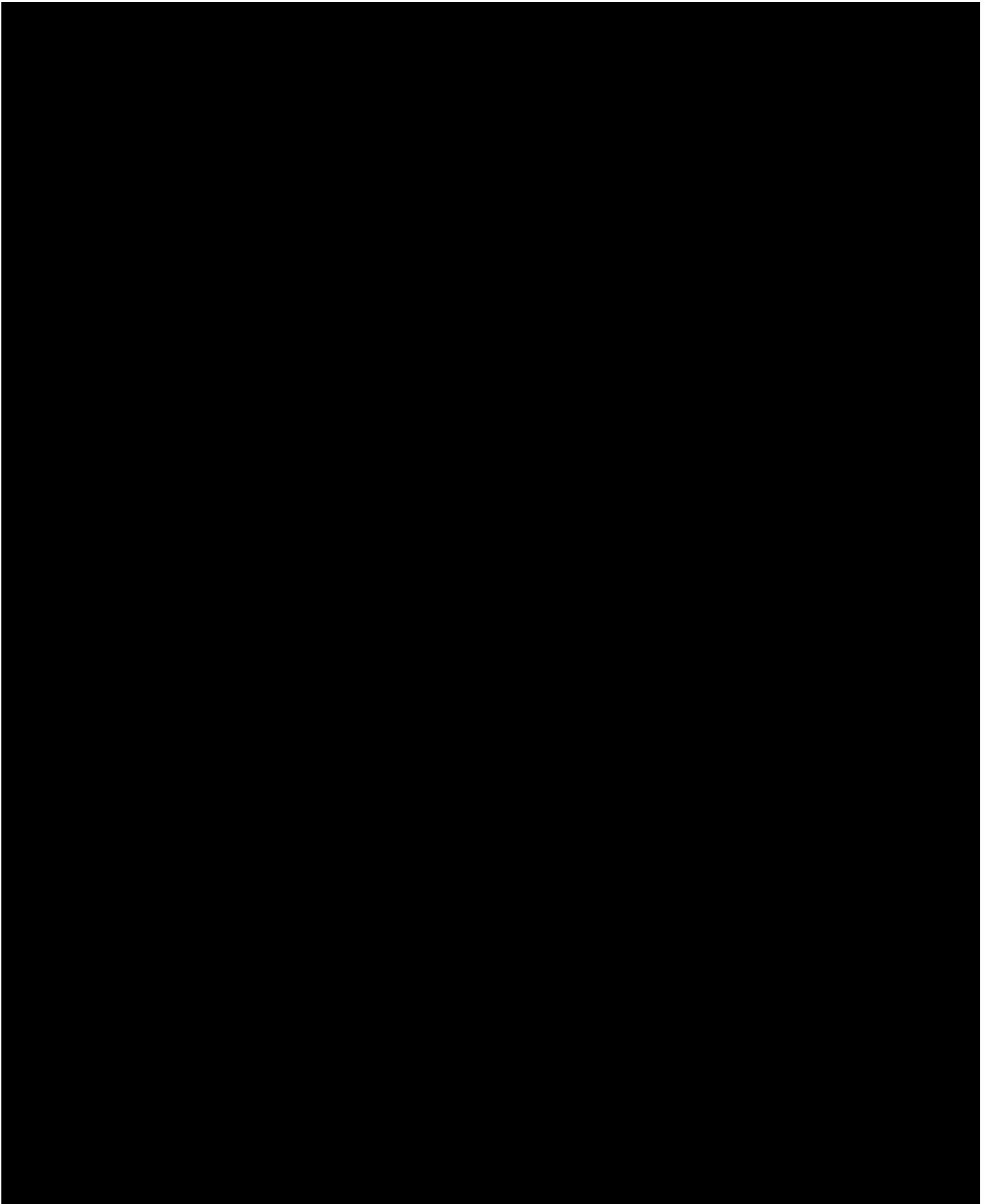


Technical data	
Input voltage	24 V DC (22...36 V)
Input current	12.5 A max.
Output voltage	Normal mode: app. 0.4 V below input voltage Battery mode: app. 30.9...19 VDC
Output current	10 A max.
Battery charge current	2 A max. (internal battery charger)
Charging voltage	26,4...31,2 V, temperature-controlled
Discharge protection of battery	19 VDC \pm 2 %
Battery low	<21 V \pm 2 % (Battery mode)
Transfer time / transfer limits	0 ms, online technology, Main / BAT 20 V / , BAT / Main 22 V
Back up time	See datasheet of battery pack BP-2425C
Interface	DSUB9 female, open collector, potential-free for Outputs: power fail, battery low Input: Shutdown Optionally also with UPS software for connecting all established operating systems
Type of battery	Maintenance-free pure lead-tin battery (PLT)
Safety / EMC	CE
Temperature	Operating: -30...+70 °C / Storage: -40...+80 °C
Humidity	Operating: 10...85 % RH, non-condensing / Storage: 10...90 % RH, non-condensing
Dimensions (WxDxH)	152 x 103 x 75 mm \pm 0.5 mm
Weight (net)	0.75 kg

Product specific data	
LED display	3 colour LED for "Power ok" (green), "Power Fail" (orange), "Battery low" (red/orange flashing) and "Battery defect" (red/green flashing)
Battery monitoring	Battery test is carried out every 10 minutes in normal mode
Power consumption	App. 150 mA
Operating height	Max. 12 000 feet above sea level
Shutdown-Suppression	The Shutdown signal is disabled for about two minutes after startup.
Reboot function	If DC IN fails and main power returns during shutdown mode of Windows®, the operating system will 'lock' with the message "Your PC is now safe". The reboot function restarts the system after about 5 seconds.

1.6.3.3 Customer Interface



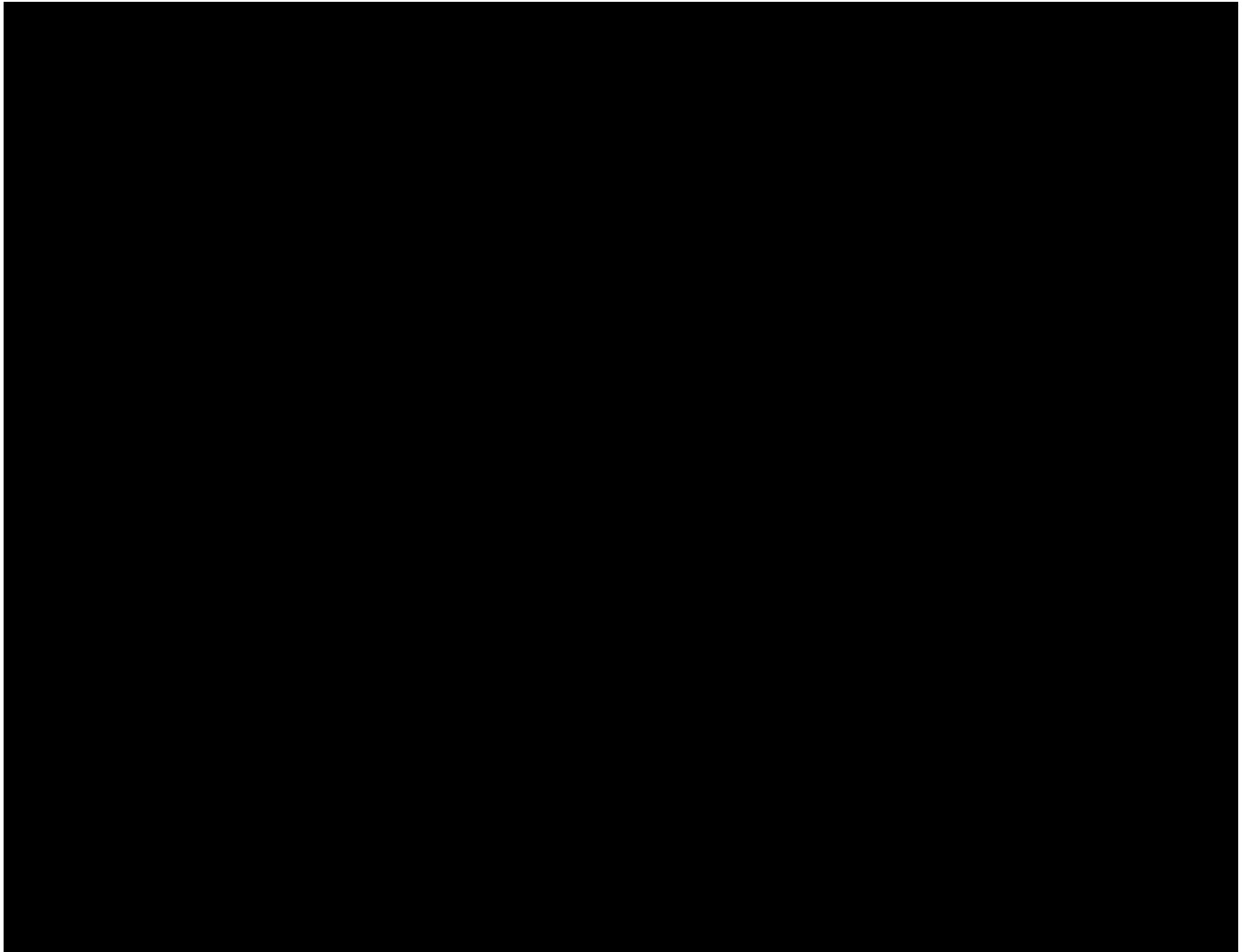


1.6.3.3.1 Screen flow - Simple Patron Purchase Process

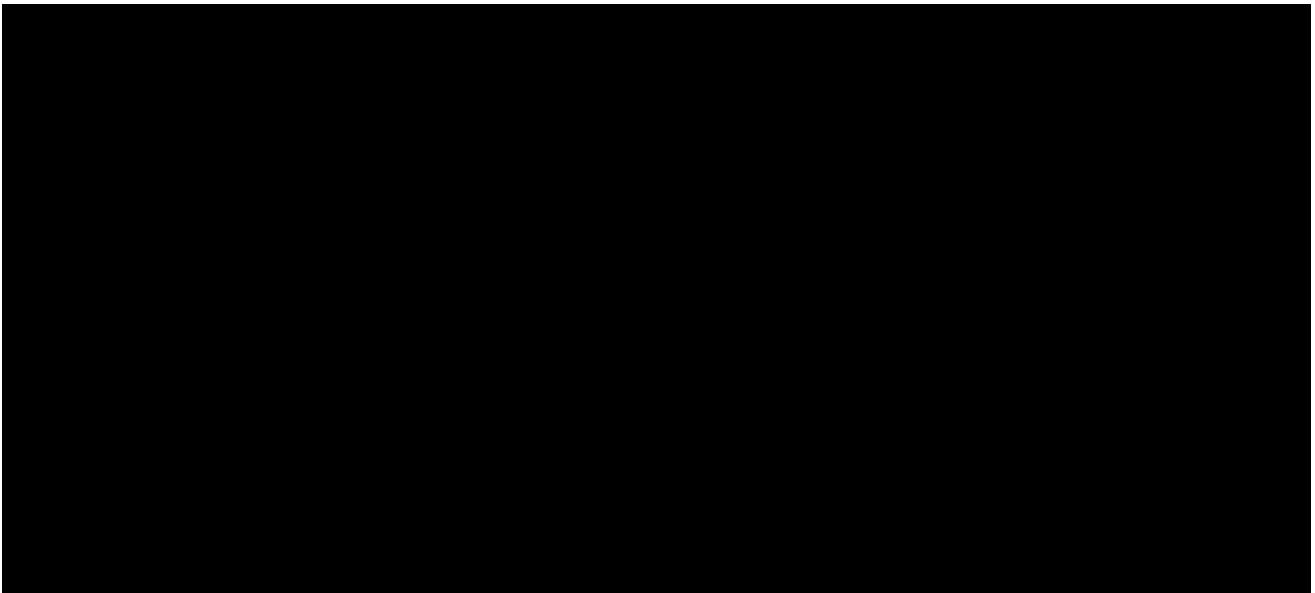
1. The user first presents the fare media (if available) to the card reader located next to the screen.
2. After this, the display shows products or functions available for the presented card (for example available stored value load amounts).
3. After selecting the value load amount, the display prompts the user to enter cash or credit card in section "2. Pay". The user can also select to issue a new card.
4. If 'Credit Card' is selected, the user is prompted to complete the credit card process by entering/tapping the credit card.
5. After payment confirmation, a receipt is issued and dispensed in the receipt/ticket tray. If the user selected to issue a new fare media (extended use card), a new card is issued and dispensed as well.

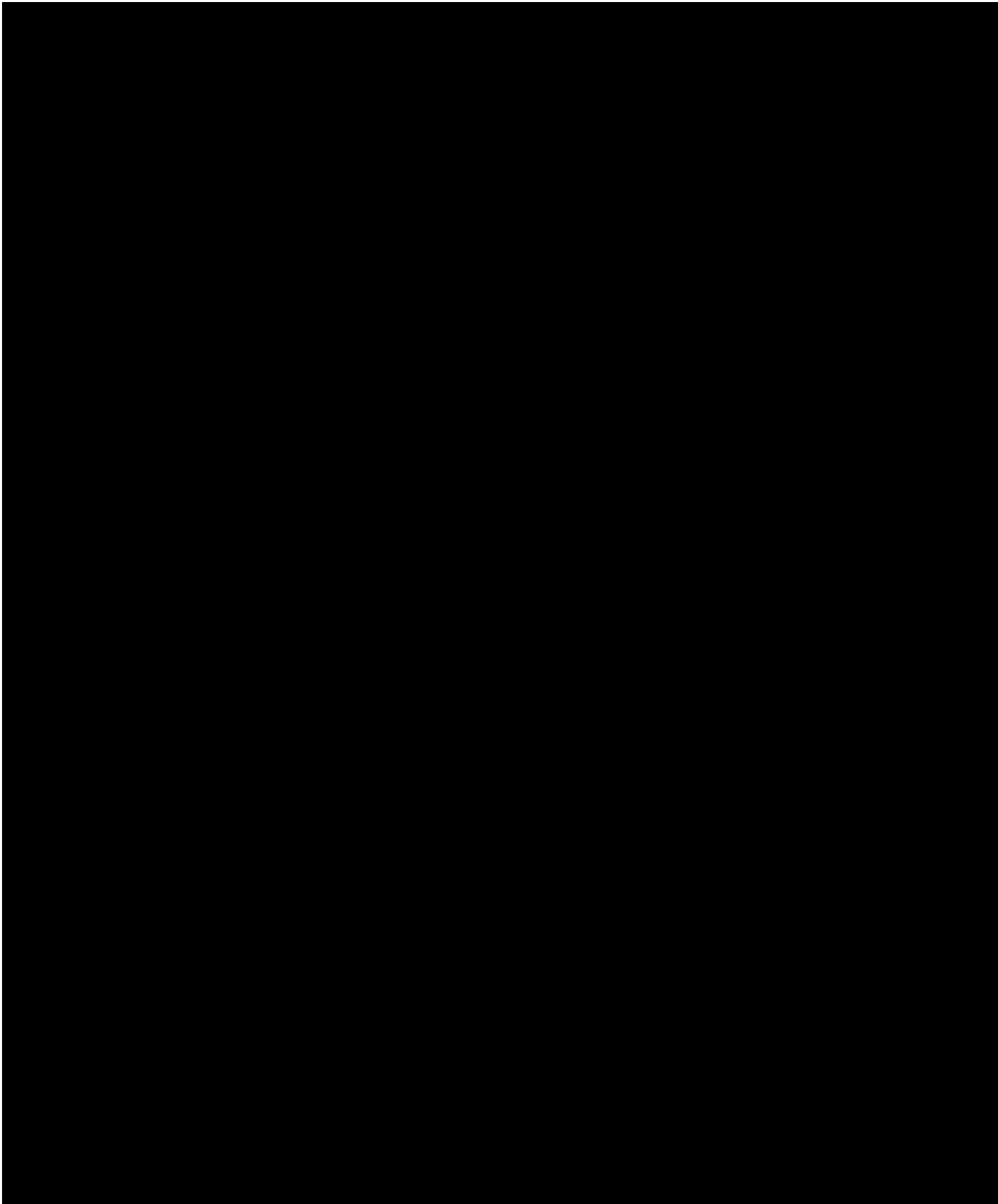
1.6.3.4 Locks and Physical Security

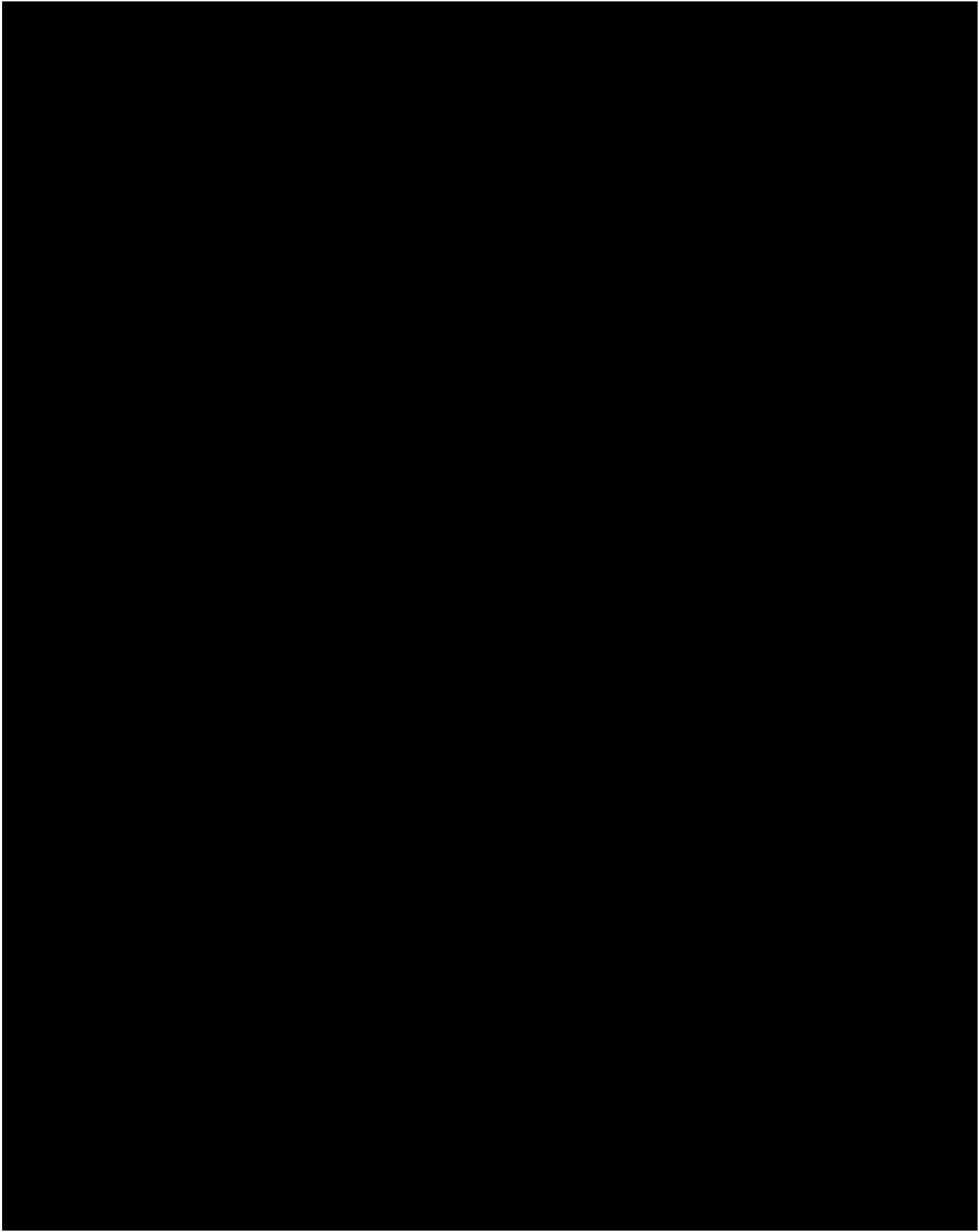


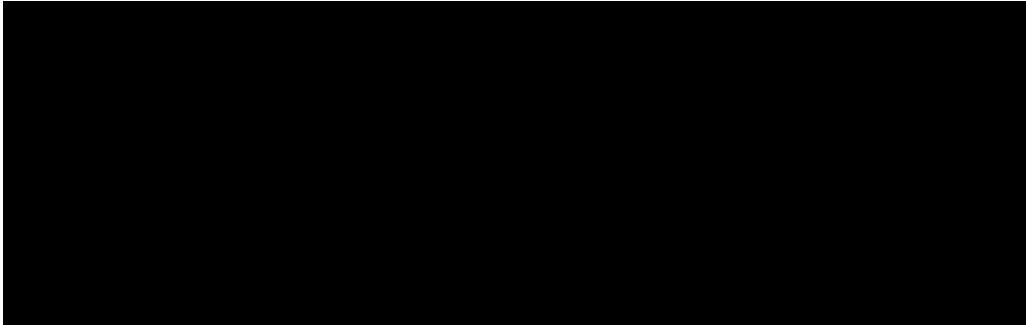


1.6.3.5 Alarms and Reported Events

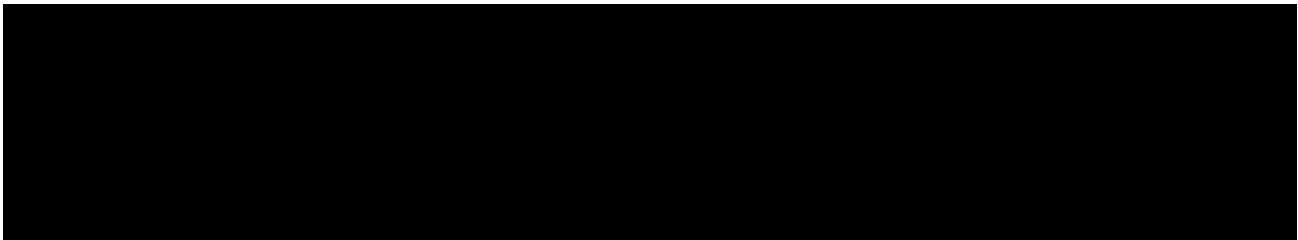




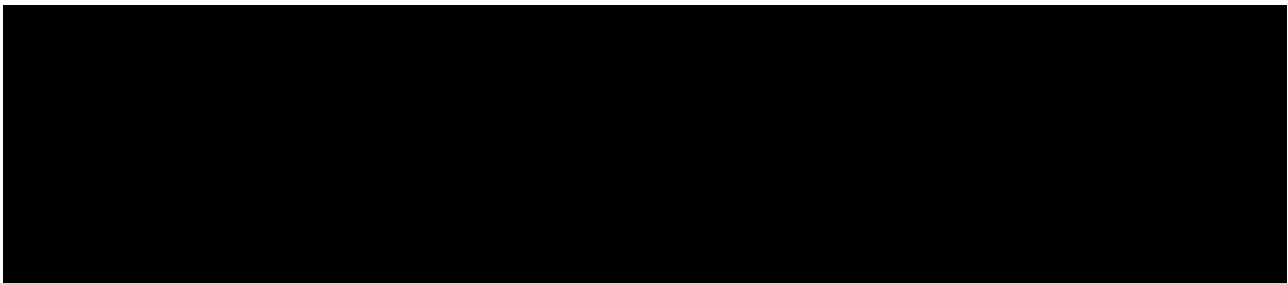




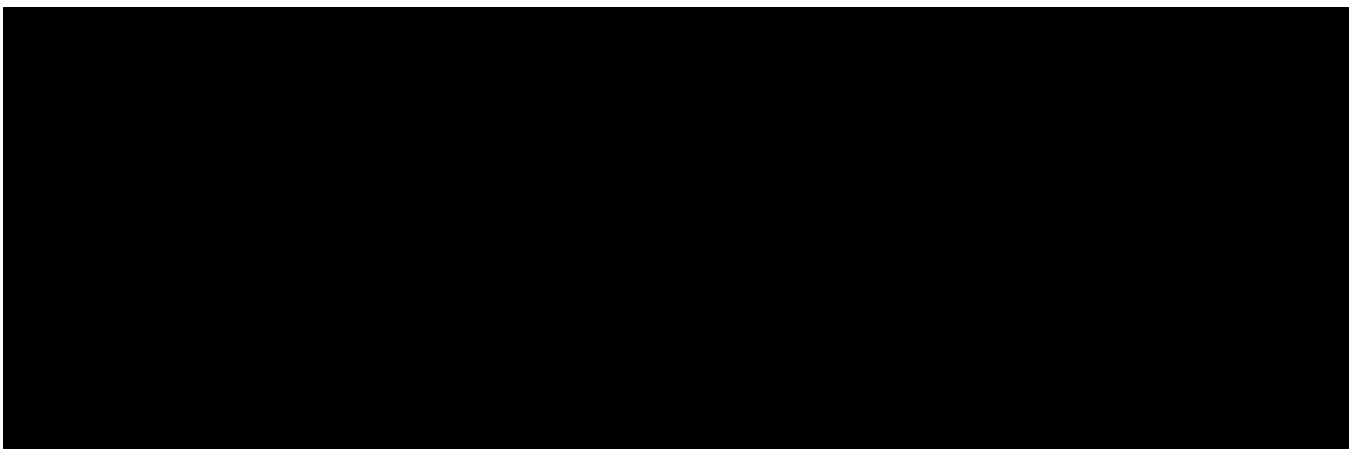
1.6.3.6 Communications



1.6.3.6.1 Cellular Modem (Option)



1.6.3.7 Power Supply FFVM



The TVD uses a Modular COTS Industrial Power Supply with Robust Modular COTS Battery Pack



Modular COTS Power Supply with Battery Backup Provide a Reliable TVD Power Source

1.6.3.8 Software



1.6.3.8.1 Operating System

The operating system of the VENDstation is Windows© Ver. 10 IoT. It will provide all system drivers needed such as Ethernet communication drivers. Special drivers which are necessary and not part of the standard Windows Ver. 10 IoT are developed and integrated by INIT. During startup of the operating system a self-test is initiated. Errors occurring during the self-test will be written into the Windows event log file. The system partition containing the Windows Ver. 10 IoT Operating System is write protected with the "enhanced write filter" (EWF). This is to avoid system partition damage in the case of unexpected power loss or hard reset.

The VENDstation is equipped with two micro SD memory cards. The sales data is saved on two physically different memory cards to ensure redundancy.

1.6.3.8.2 Vending Machine Application

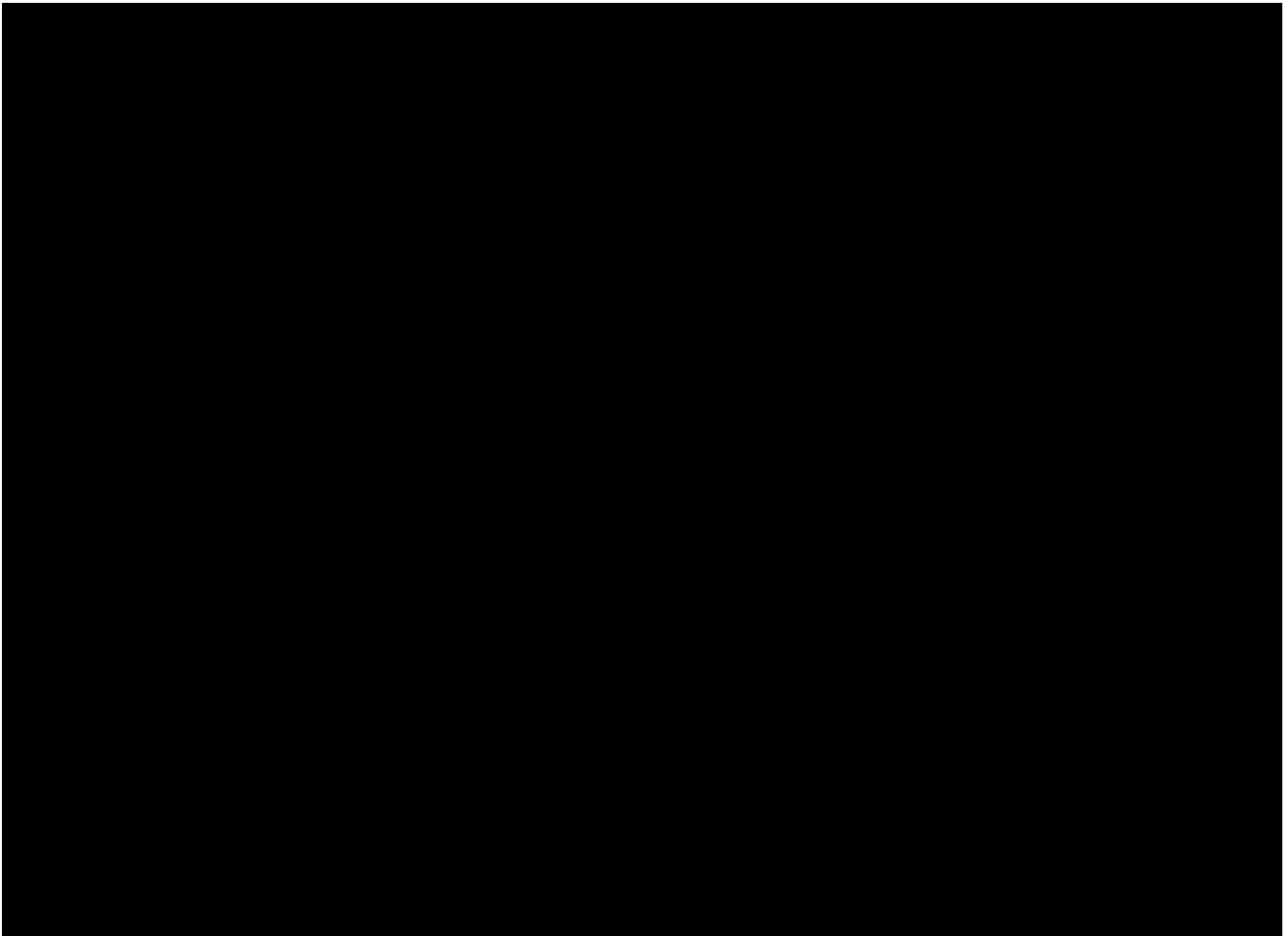
The VENDstation software is implemented in the programming language C/C++. To access standard functions, like file transfer or serial ports, the resources of the operating system are used. The main functionality of the VENDstation application is:

- Integrated diagnostic functions
- Data Exchange via LAN
- Control input, Control output
- Control of coin-and bill-handling
- Control of credit card terminal

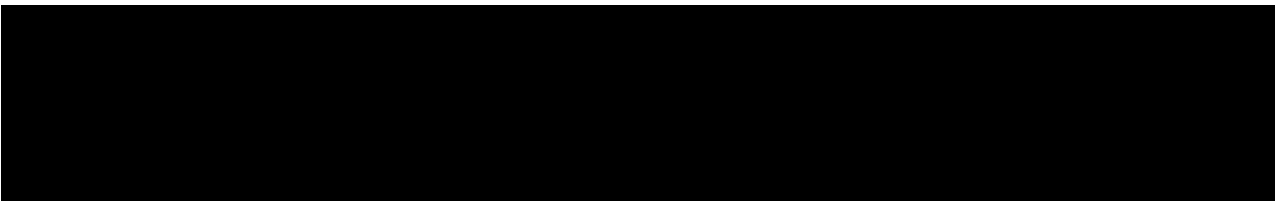
- Control of smartcard reader
- Control of card dispenser
- Ticketing functions

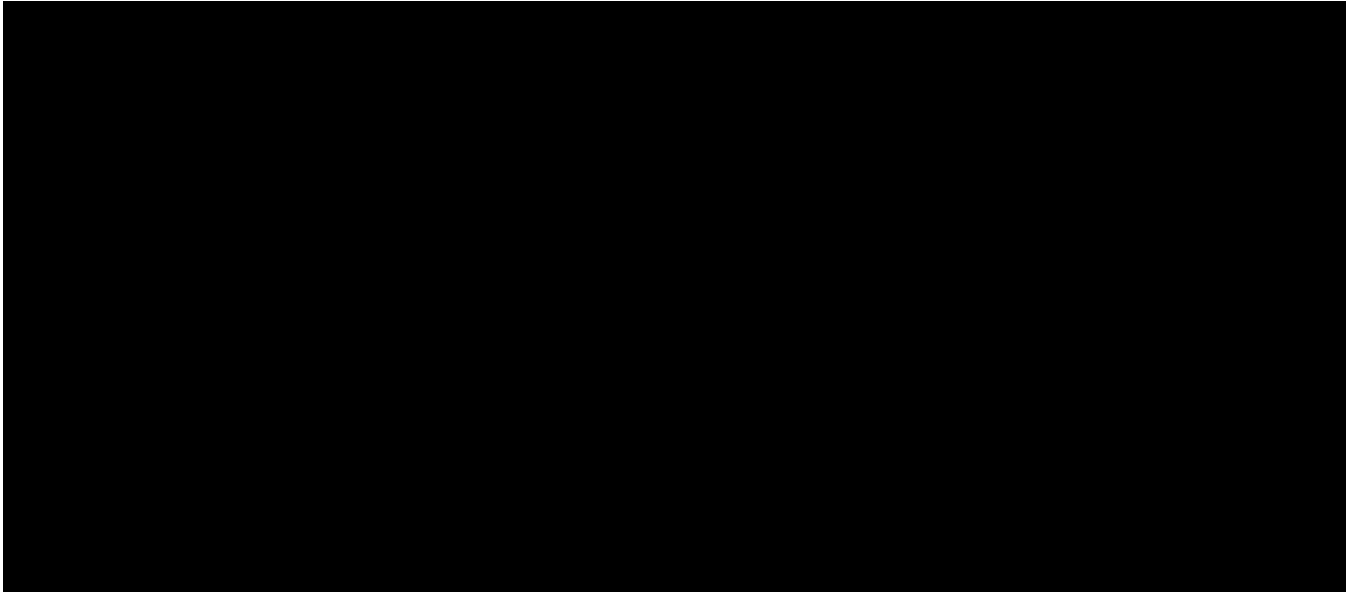
All functionality is provided in one executable application file. Additional configuration specific files the application software needs are provided in a software archive by INIT. The software archive is distributed via the usual data provision.

1.6.3.8.3 Transaction Records

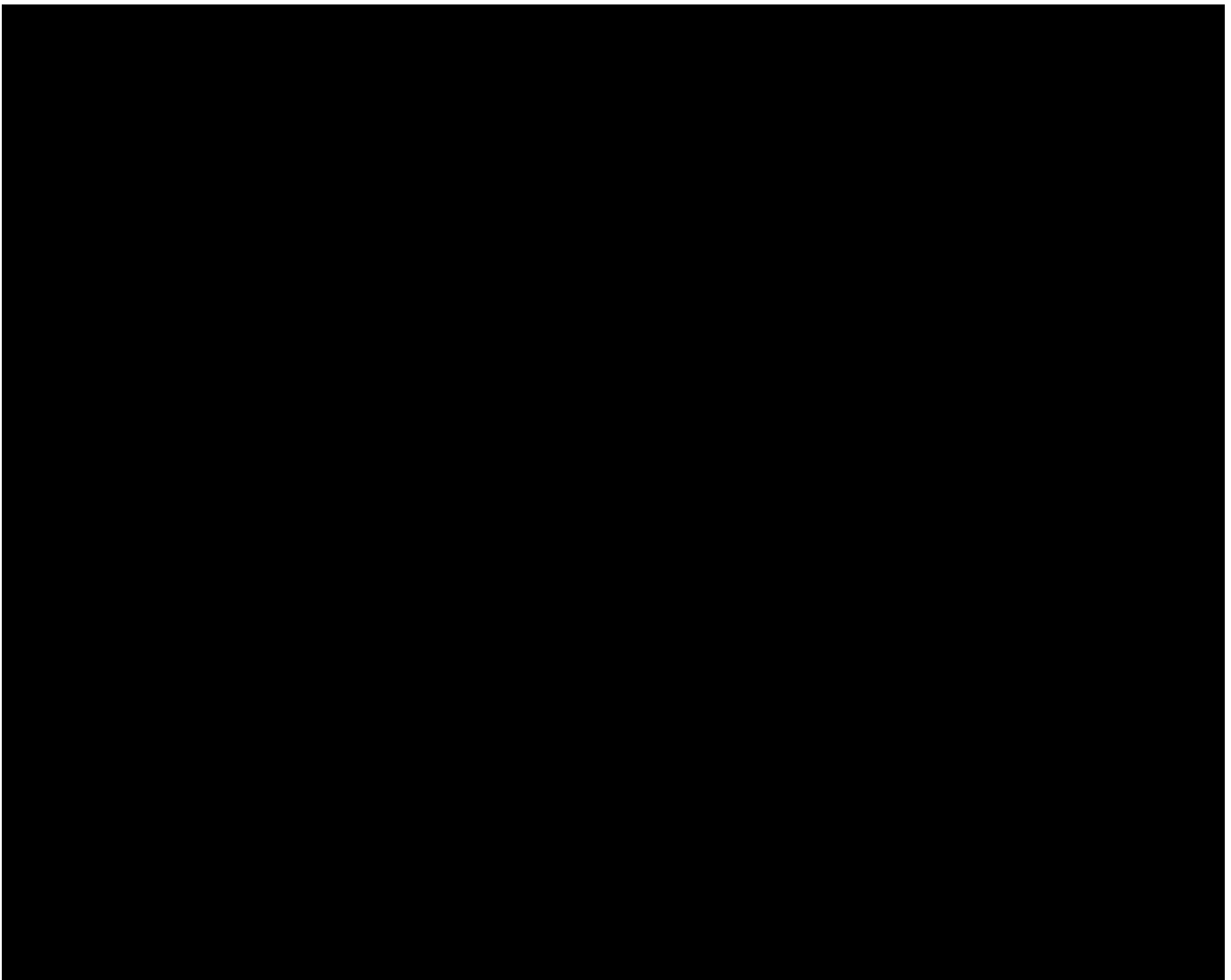


1.6.3.8.4 Audit Registers





1.6.3.8.5 Events and Alarms

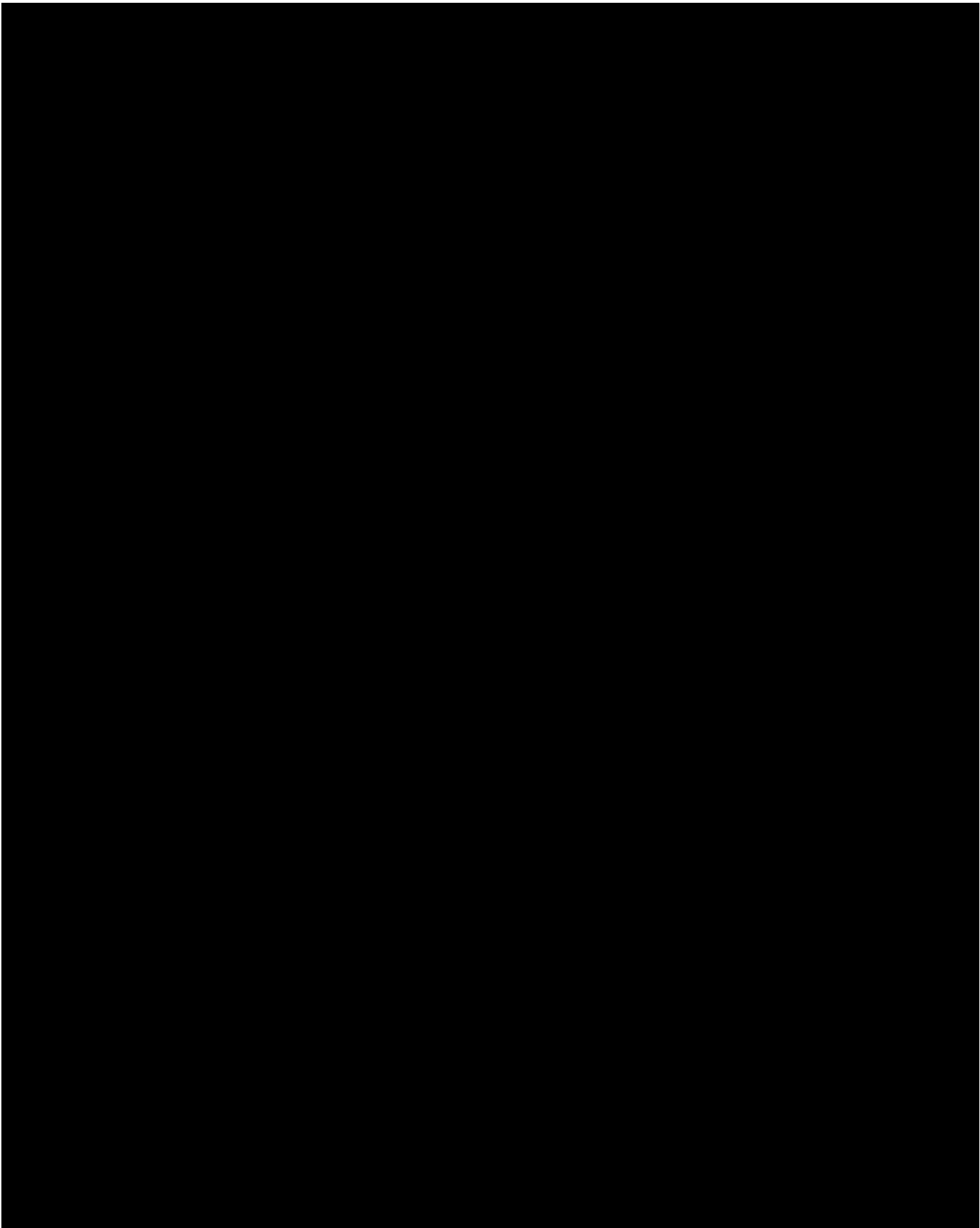


1.6.3.9 Operations

1.6.3.9.1 Voice Annunciation

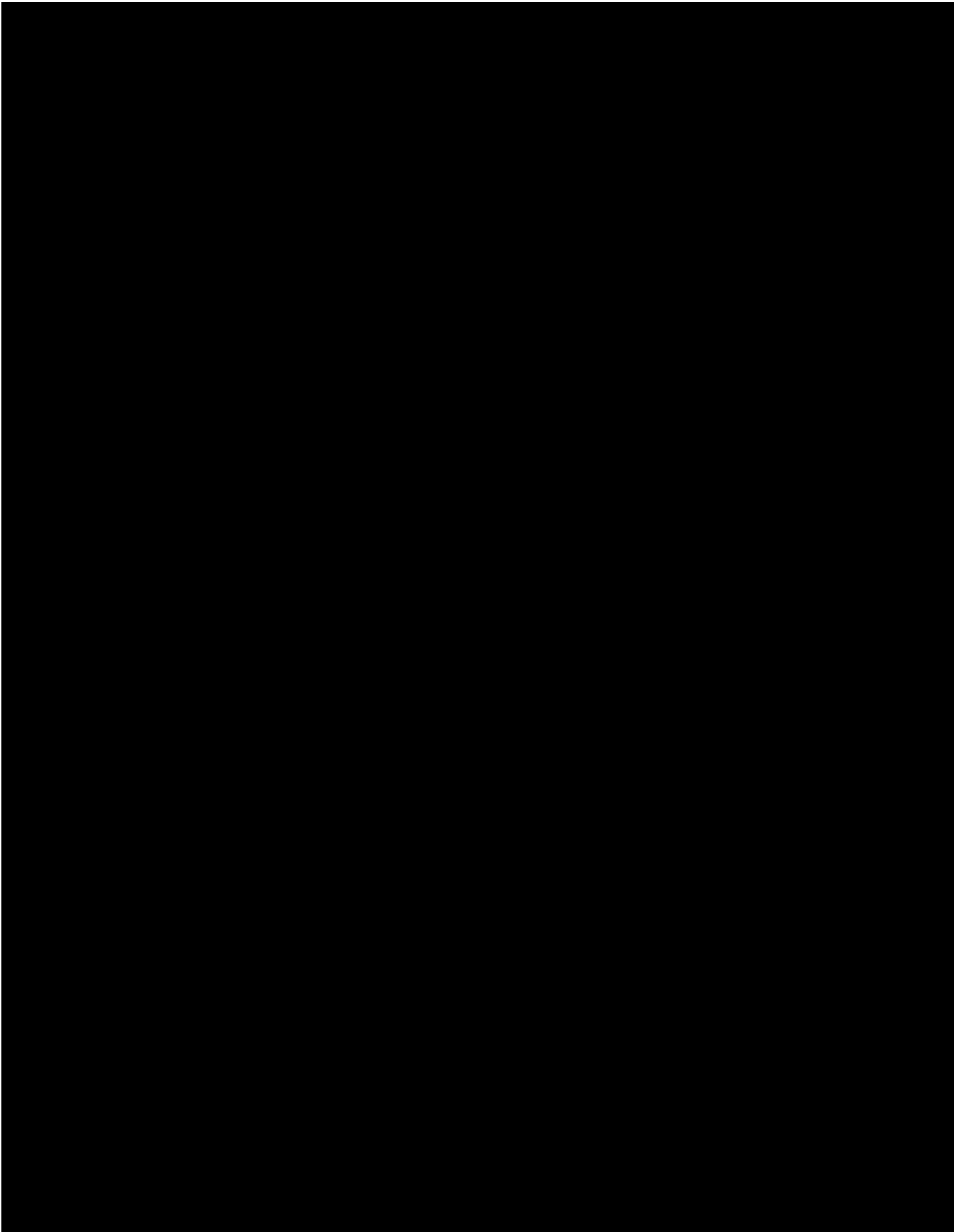
1.6.3.9.2 Multi-Lingual Capabilities

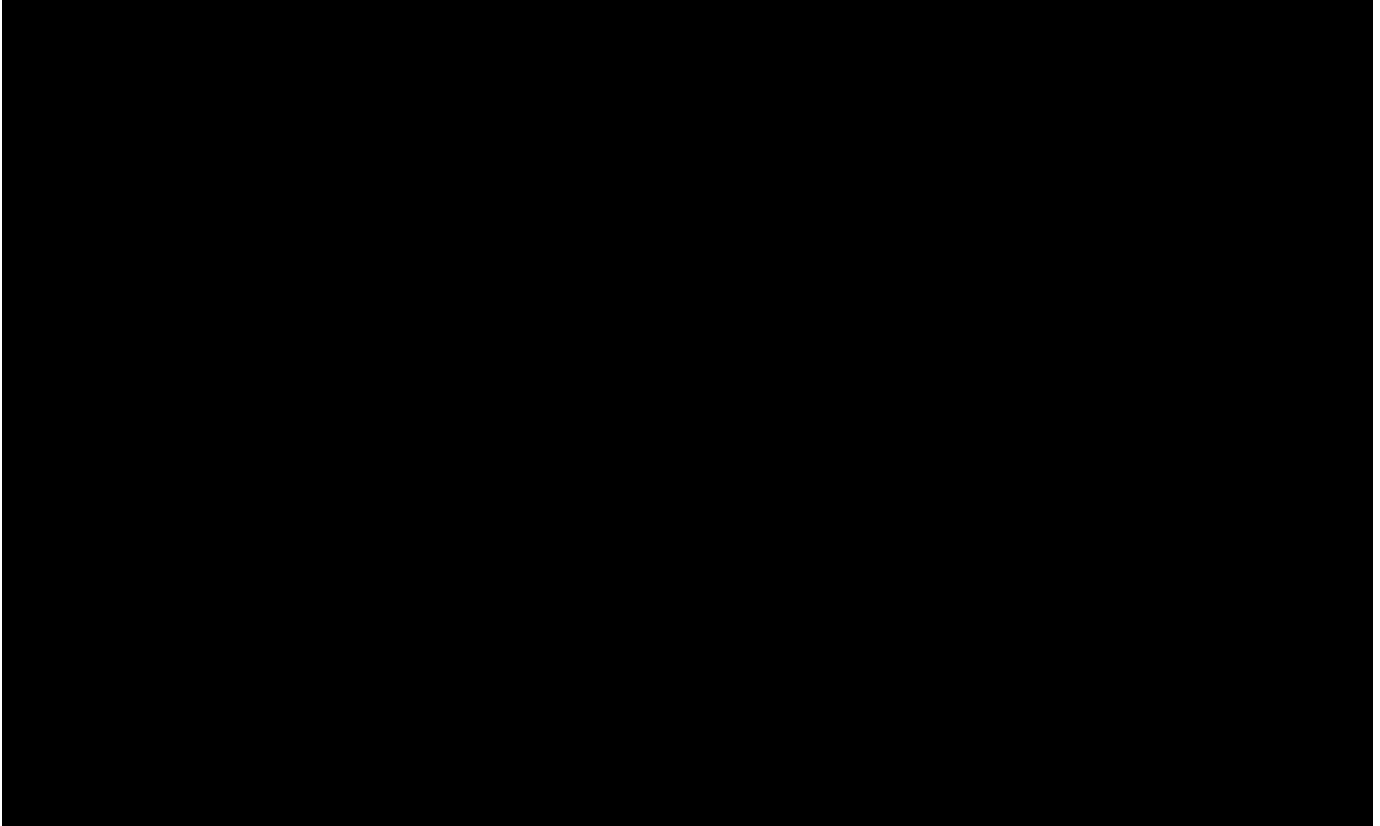
1.6.3.9.3 Customer Operations



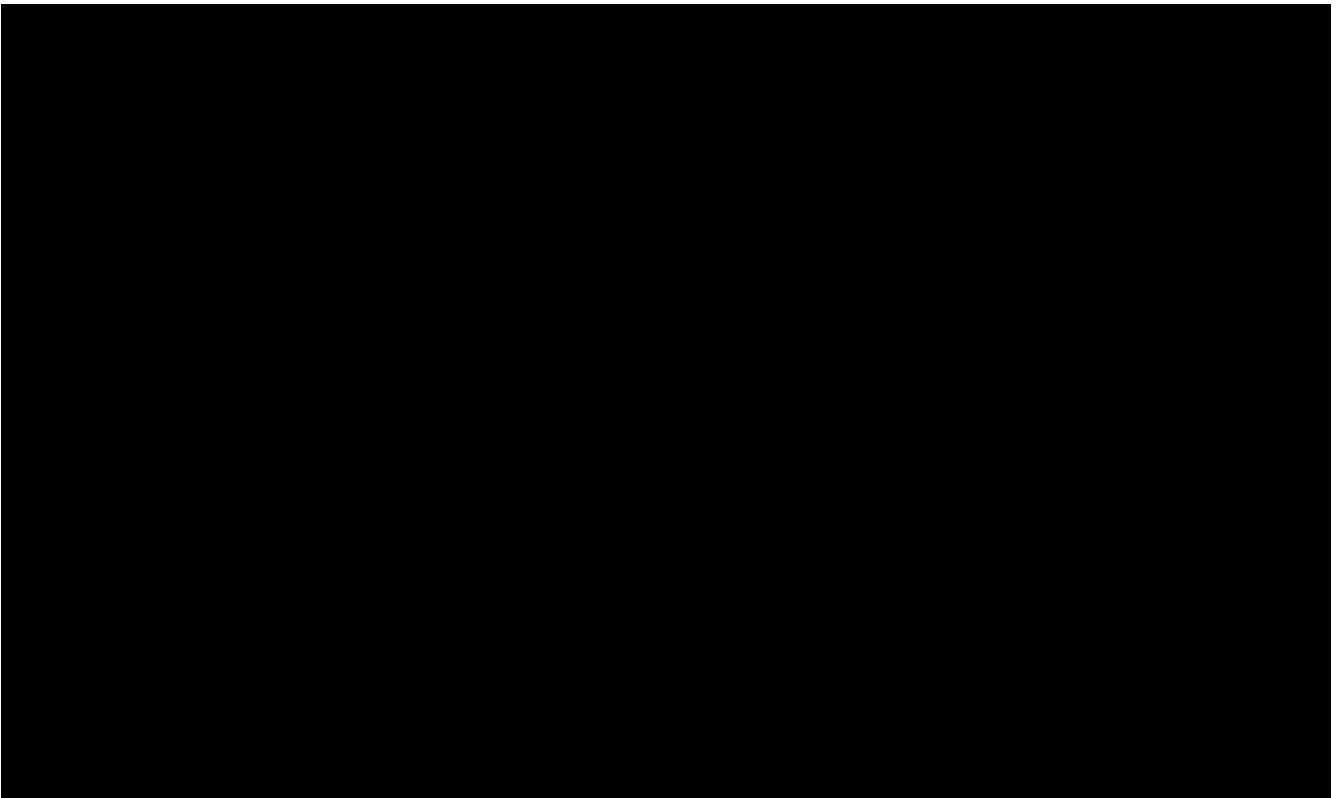
1.6.4 INIT's User-Friendly Customer Service Terminal

1.6.4.1 Hardware





1.6.4.1.1 Customer Service Terminal Computer



1.6.4.1.2 Customer Service Terminal - Dock

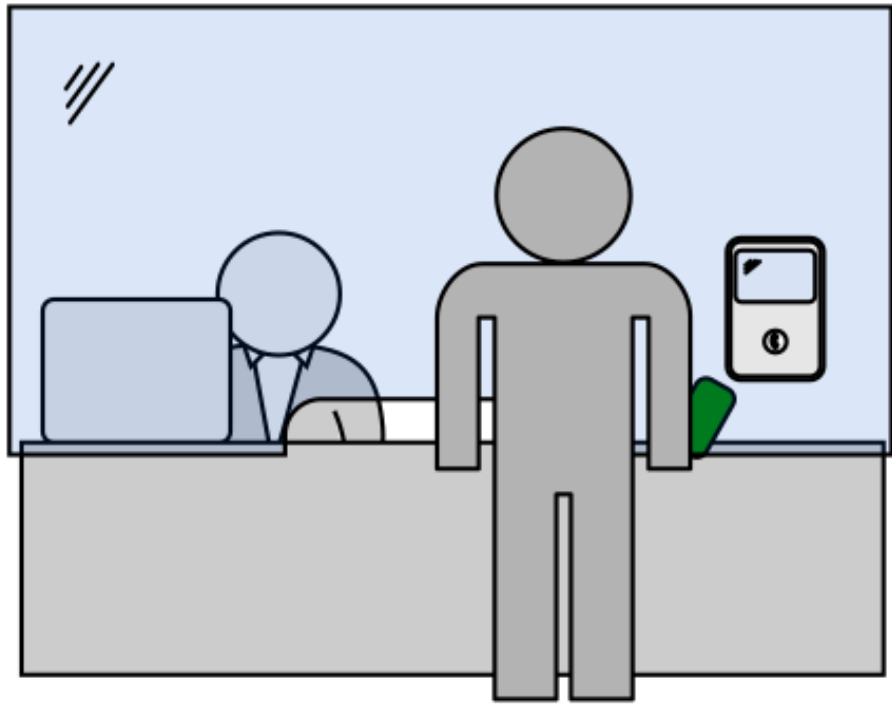
1.6.4.1.3 Customer Service Terminal External Monitor

The Agencies indicated that in some deployment options, an external display may be desired to be added to the customer service terminal. INIT is proposing an HP EliteDisplay E220t 21.5-inch Touch Monitor. Reflecting the desires of the high definition, integrated touch screen on the HP EliteBook, the proposed 21.5 inch display boasts the same high definition and touch capabilities.

1.6.4.1.4 Customer Service Terminal – Keyboard and Pointing Device

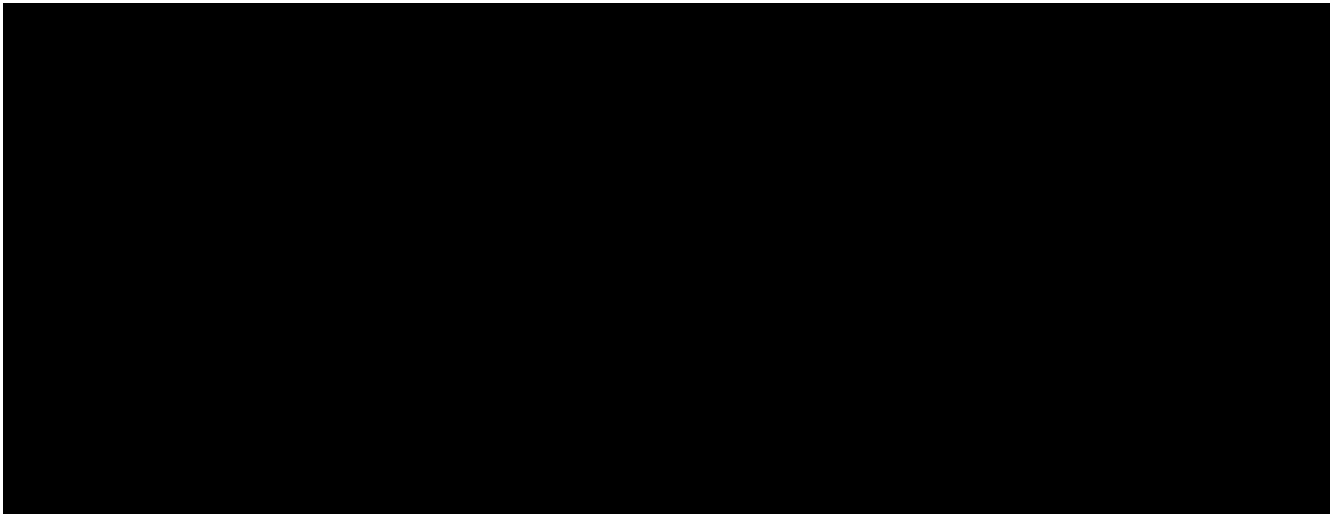
For traditional installations within the Mail Center and Customer Service Office, an external, wireless keyboard and mouse combination will be provided. INIT proposes the Logitech MK520 Mouse and Keyboard combination. The keyboard and pointing device will connect to the Customer Service Terminal via Wireless USB interface.

1.6.4.1.5 Customer Service Terminal - Closed Loop Media Processor

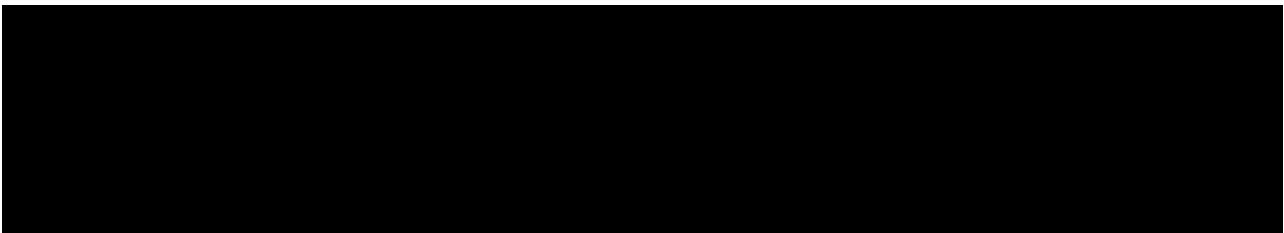


Service Center Closed Loop Reader

1.6.4.1.6 Customer Service Terminal – Image Capture



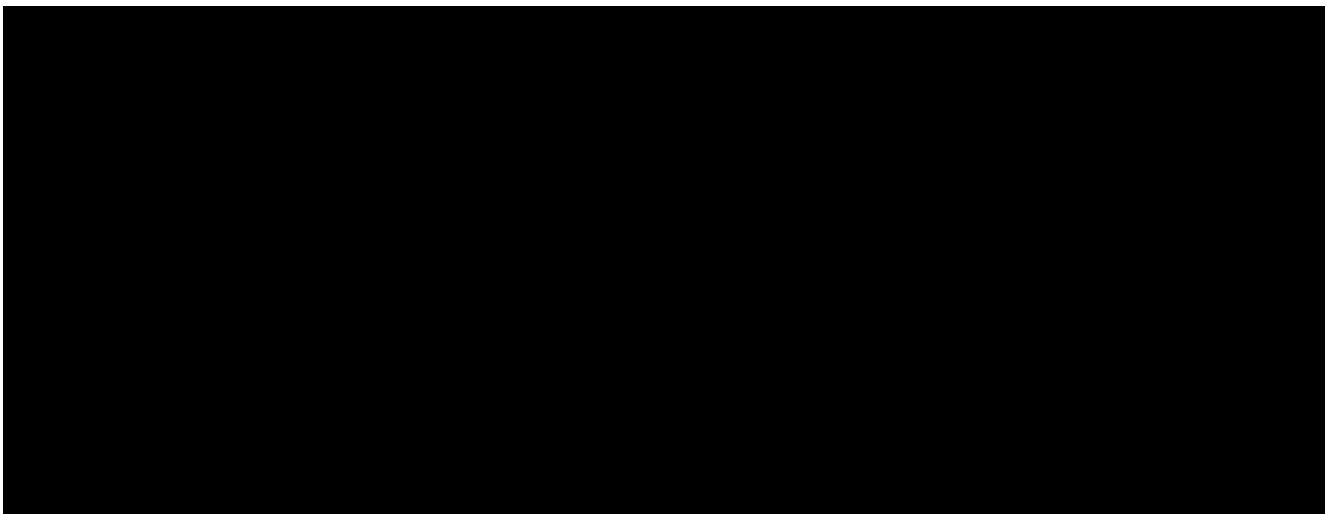
1.6.4.1.7 Customer Service Terminal – Document Capture



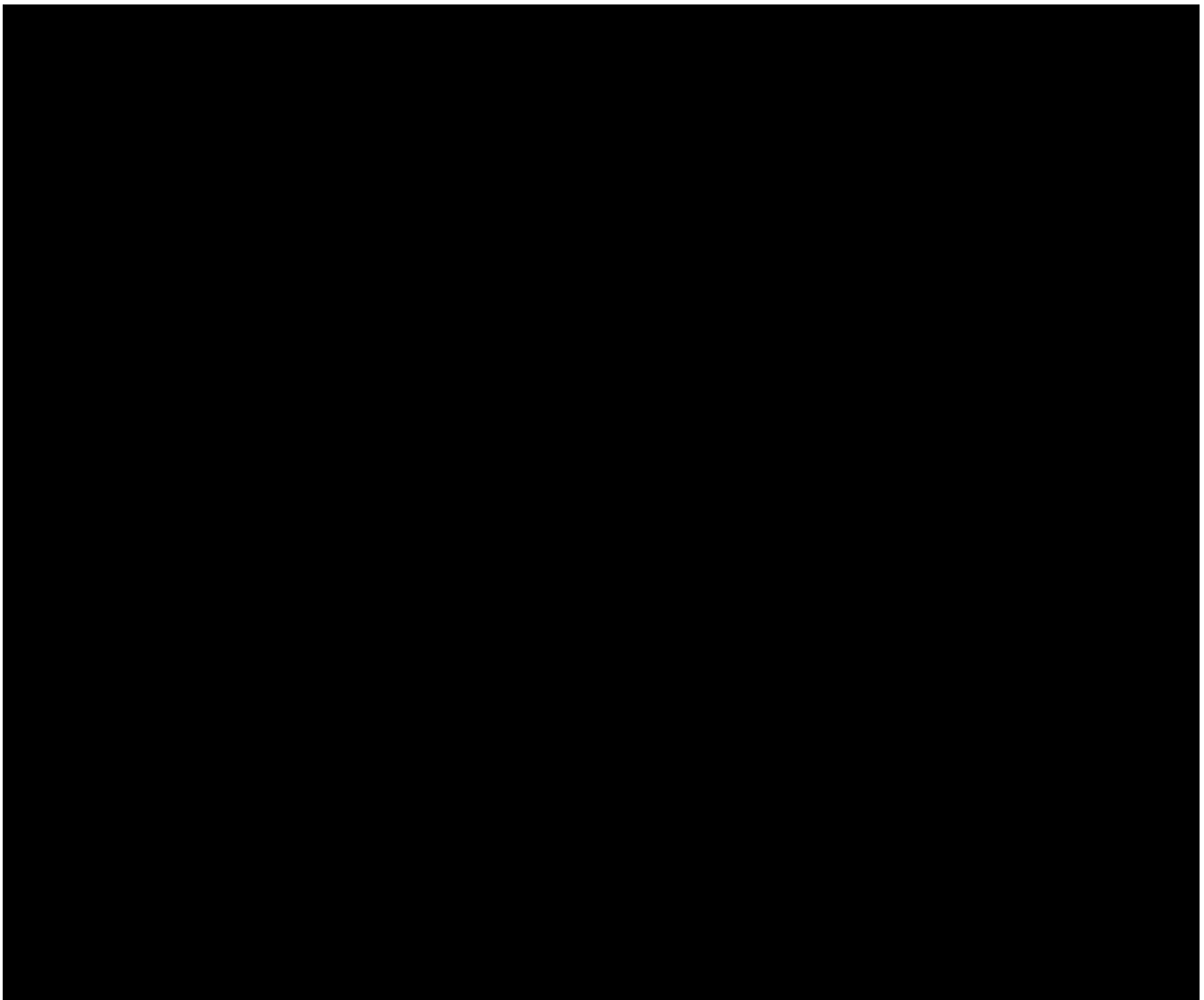
1.6.4.1.8 Customer Service Terminal – Portable Document Capture

1.6.4.1.9 Customer Service Terminal – Secure Cash Storage

1.6.4.1.10 Customer Service Terminal – Customer Display

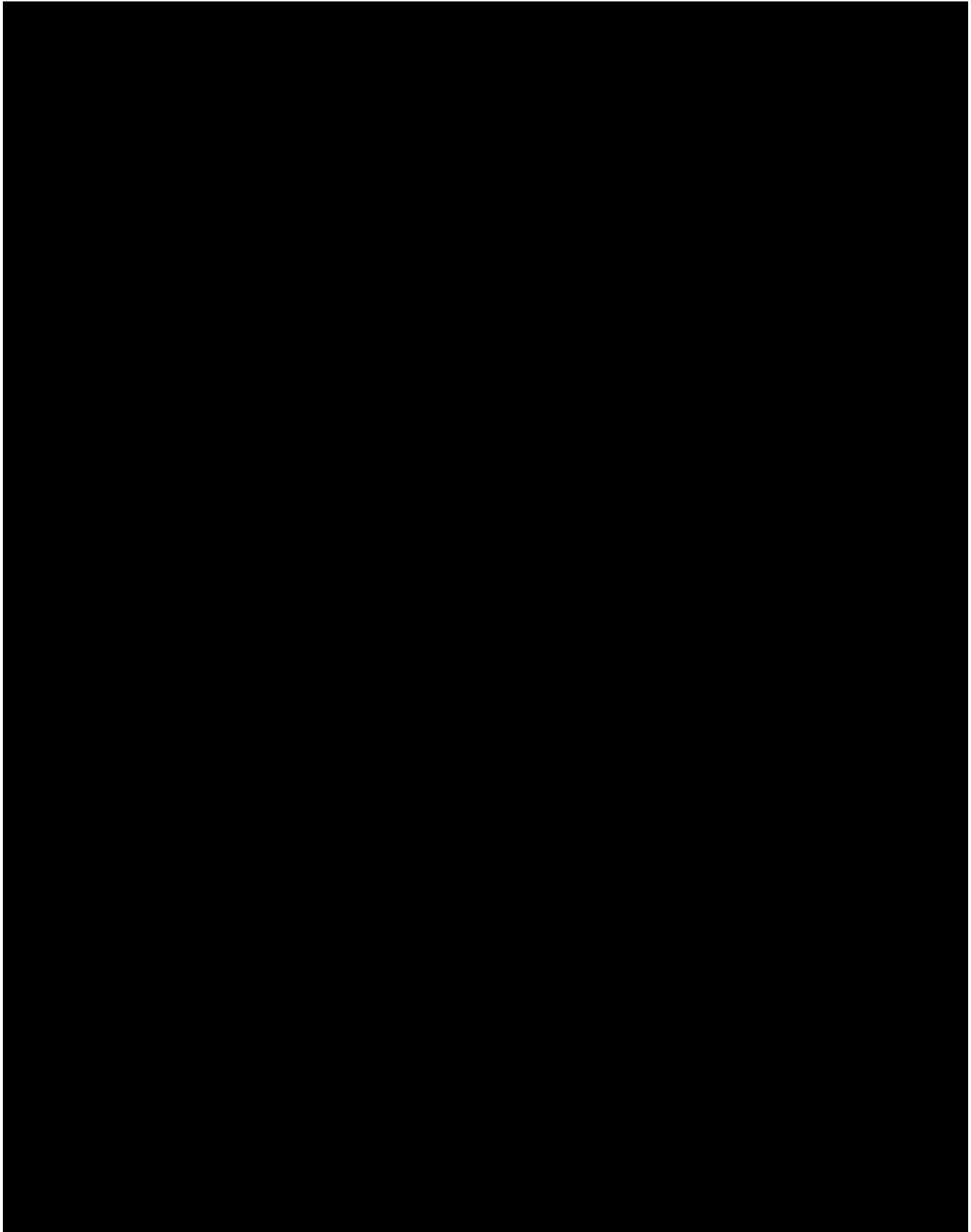


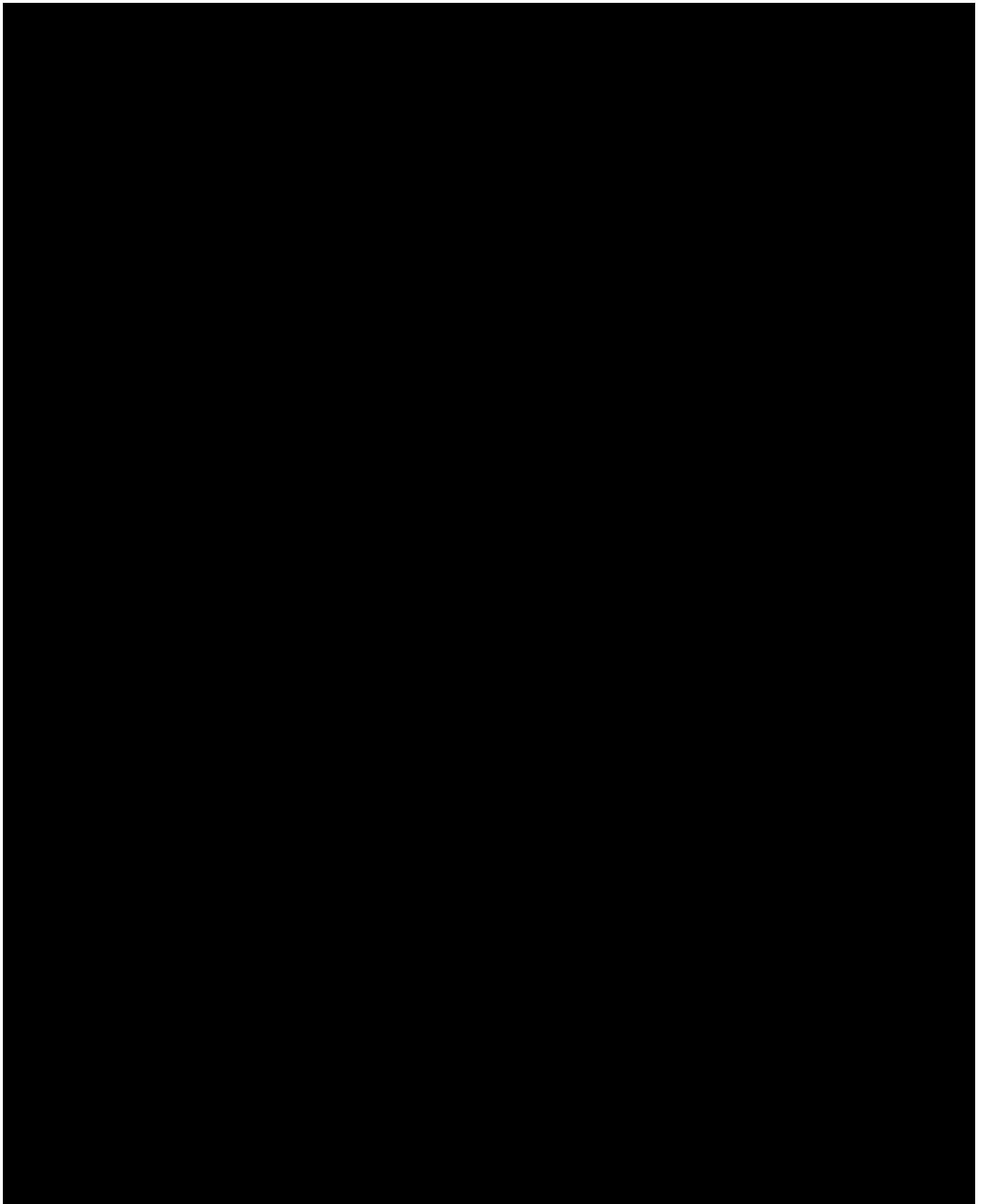
1.6.4.1.11 Customer Service Terminal – Bank Card Processing



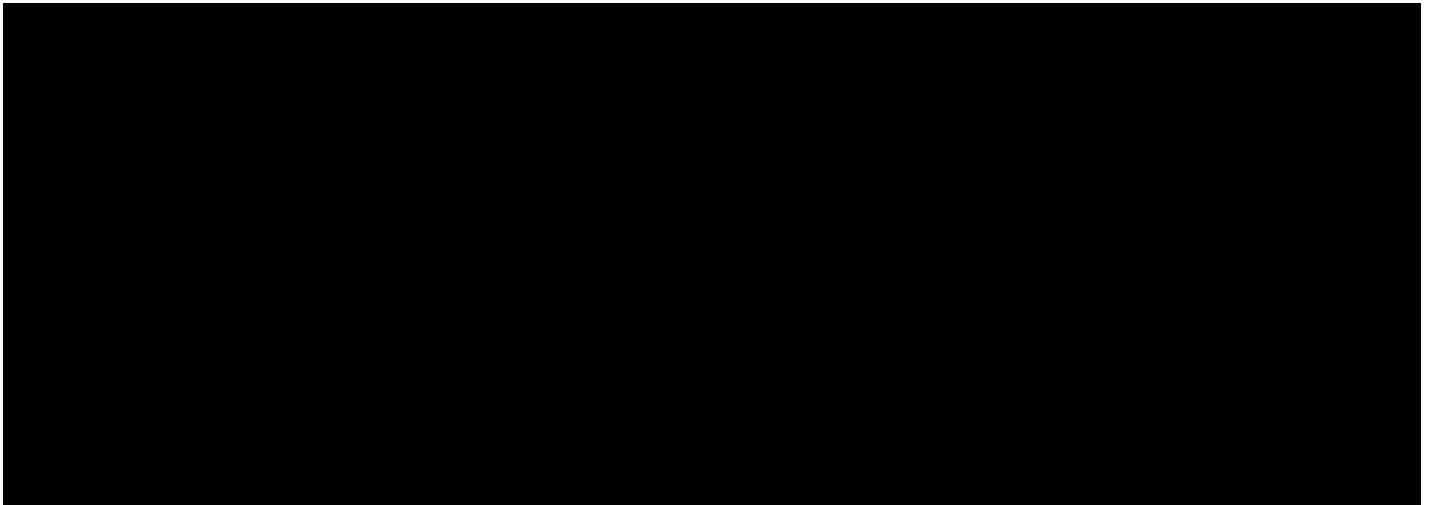
1.6.4.1.12 Customer Service Terminal – Receipt Printing







1.6.4.1.13 Customer Service Terminal – Mobile Receipt Printing



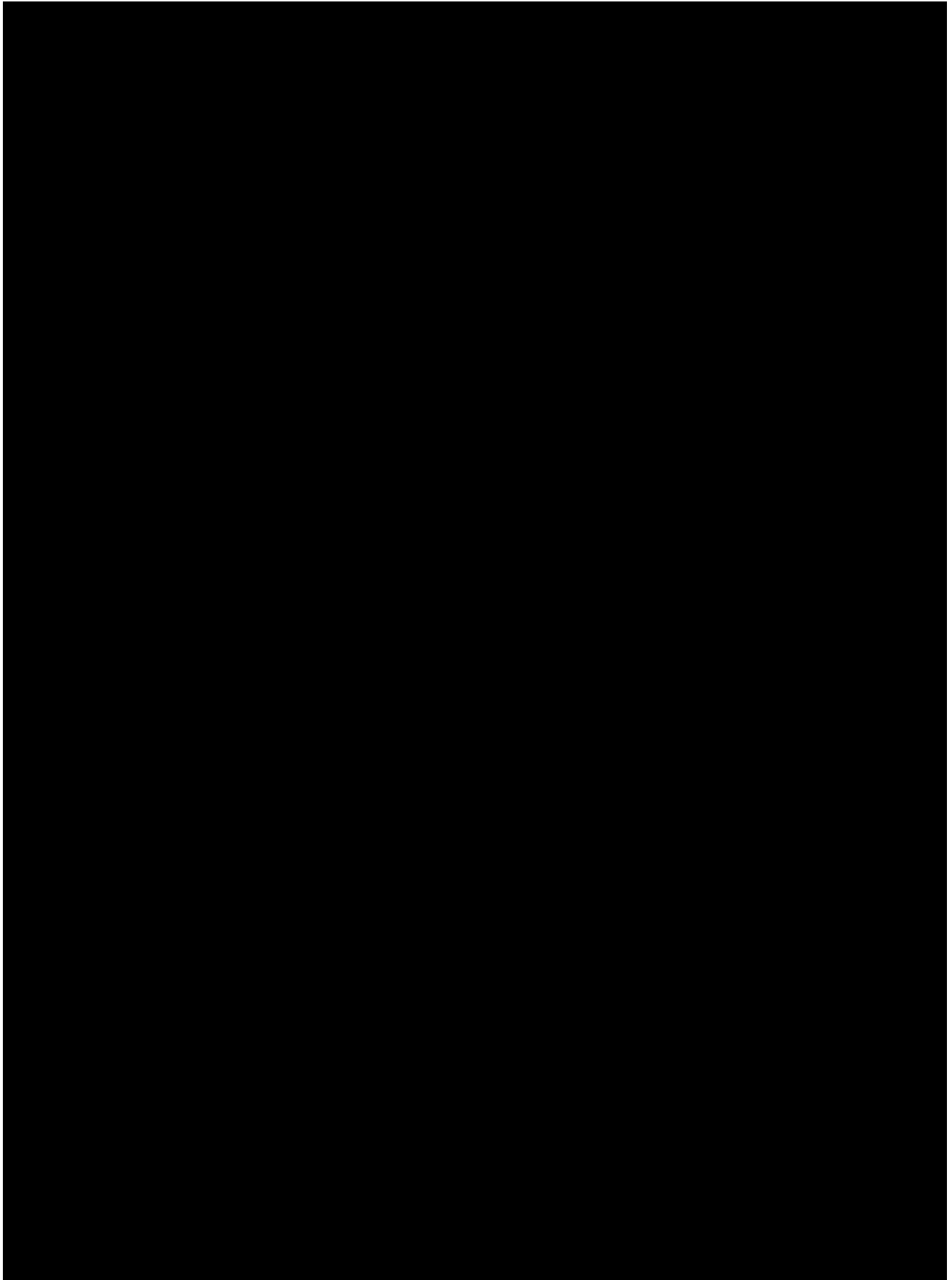


An Innovative Systems Integrator for Next Generation ORCA
INIT's Open Architecture, Account-Based AFC System



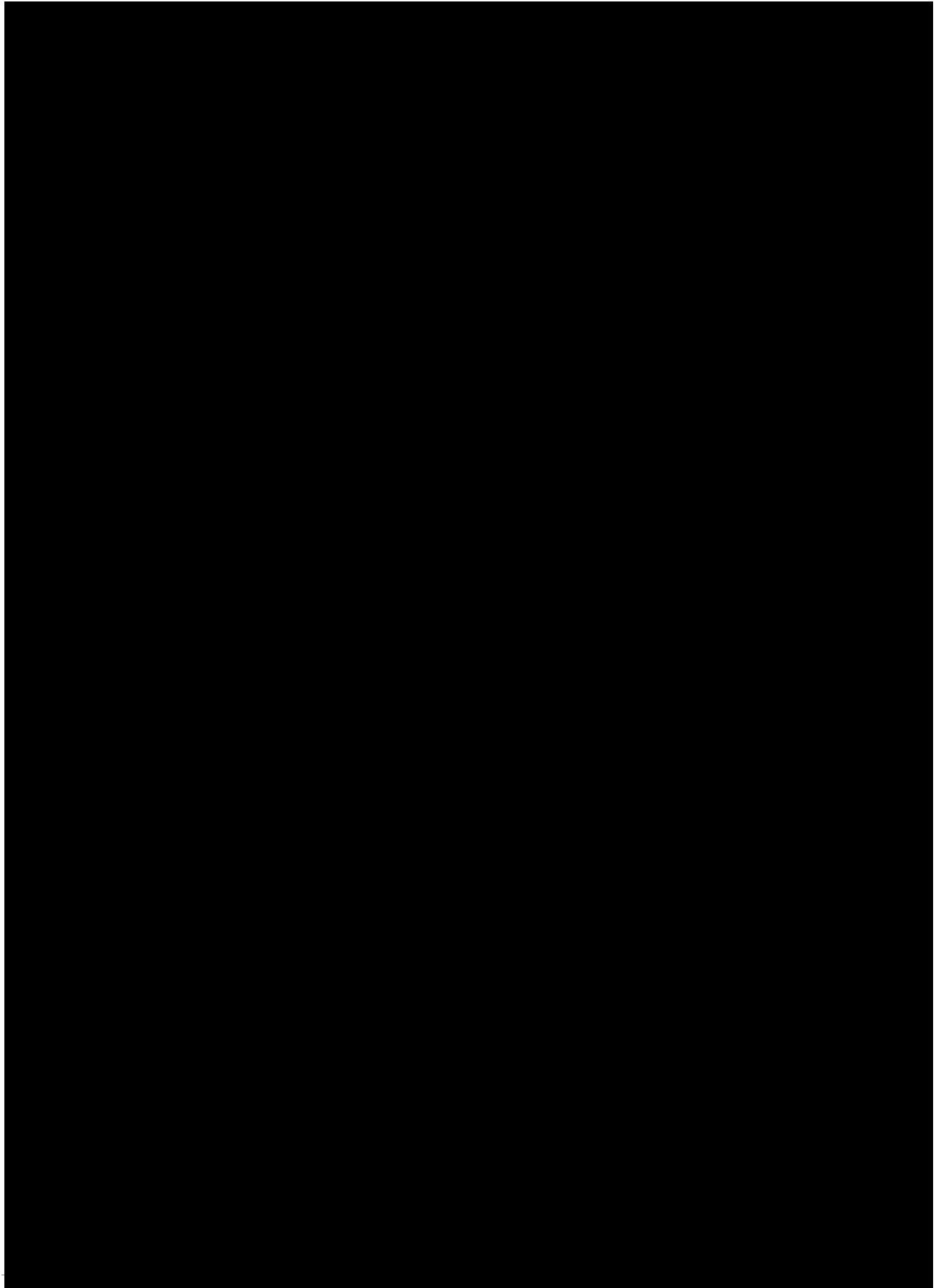


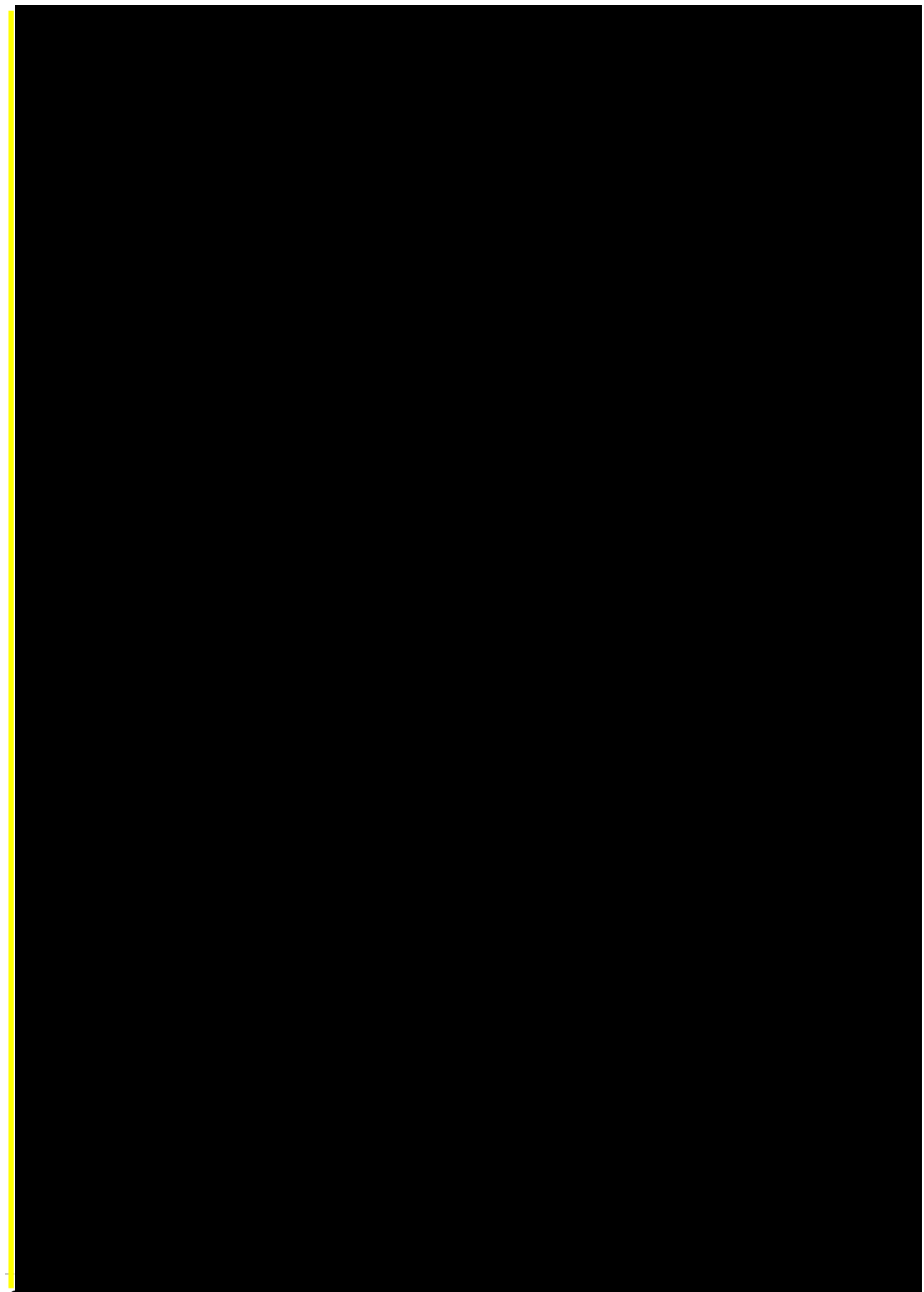
An Innovative Systems Integrator for Next Generation ORCA
INIT's Open Architecture, Account-Based AFC System



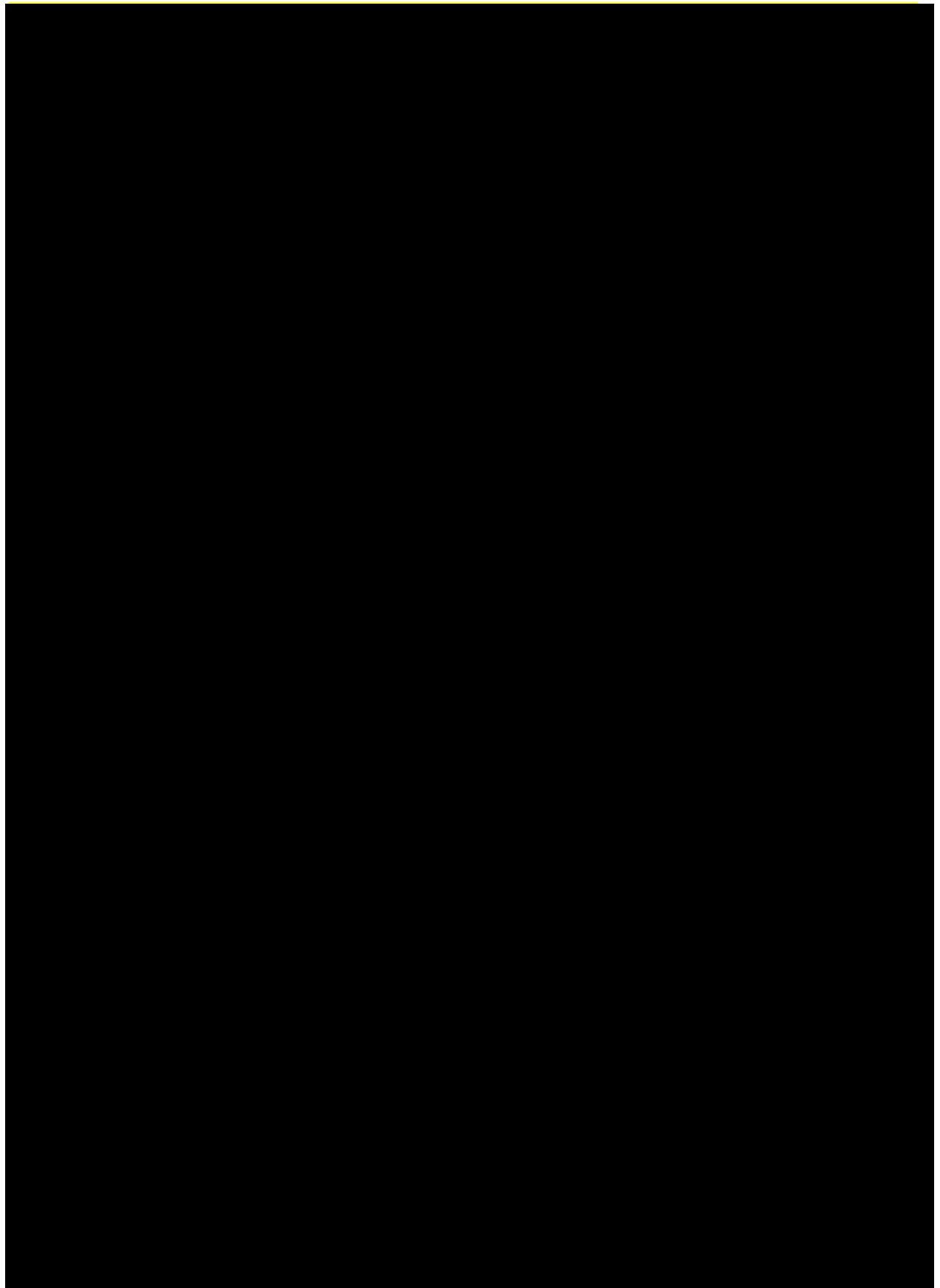


An Innovative Systems Integrator for Next Generation ORCA
INIT's Open Architecture, Account-Based AFC System



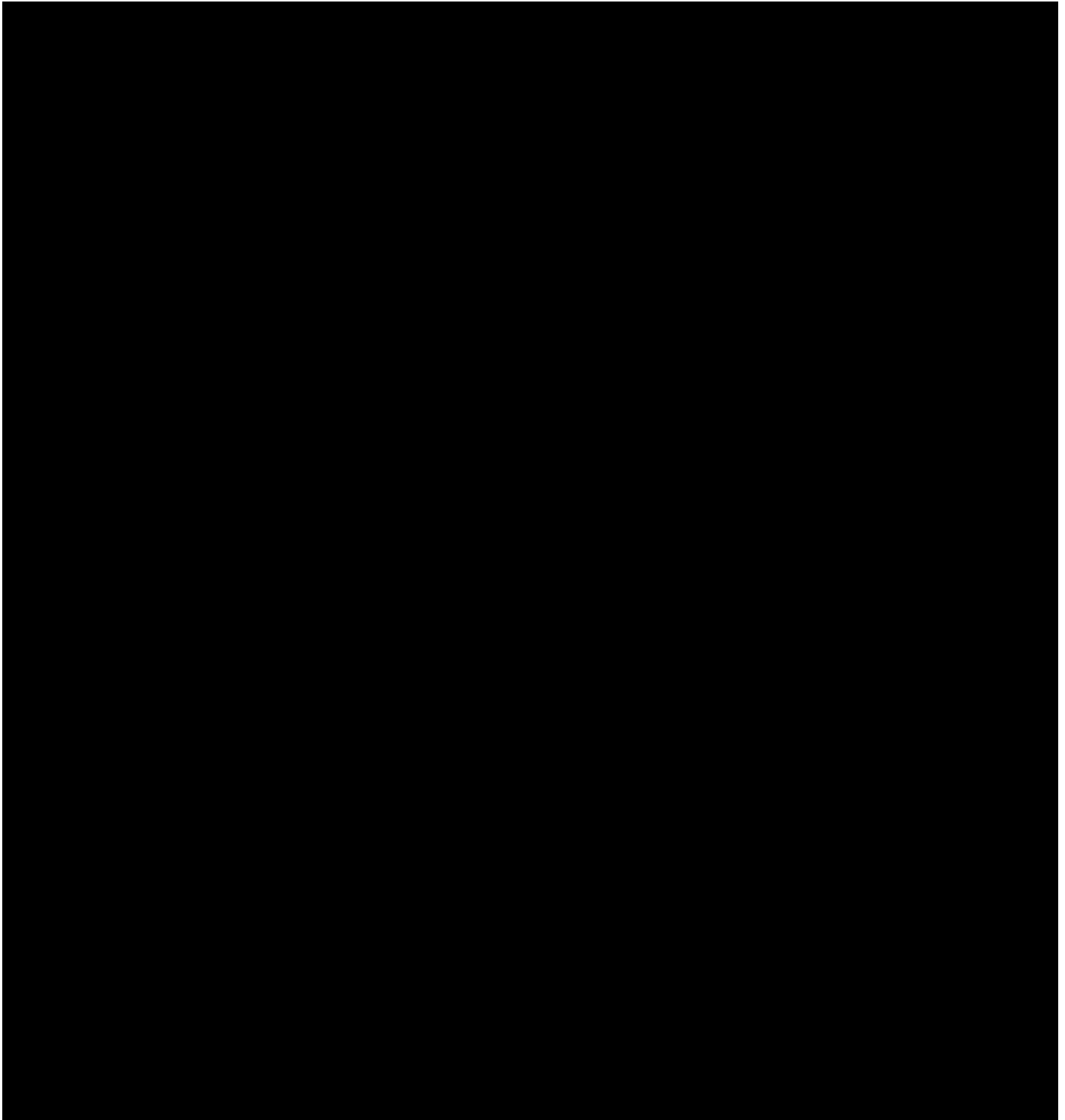


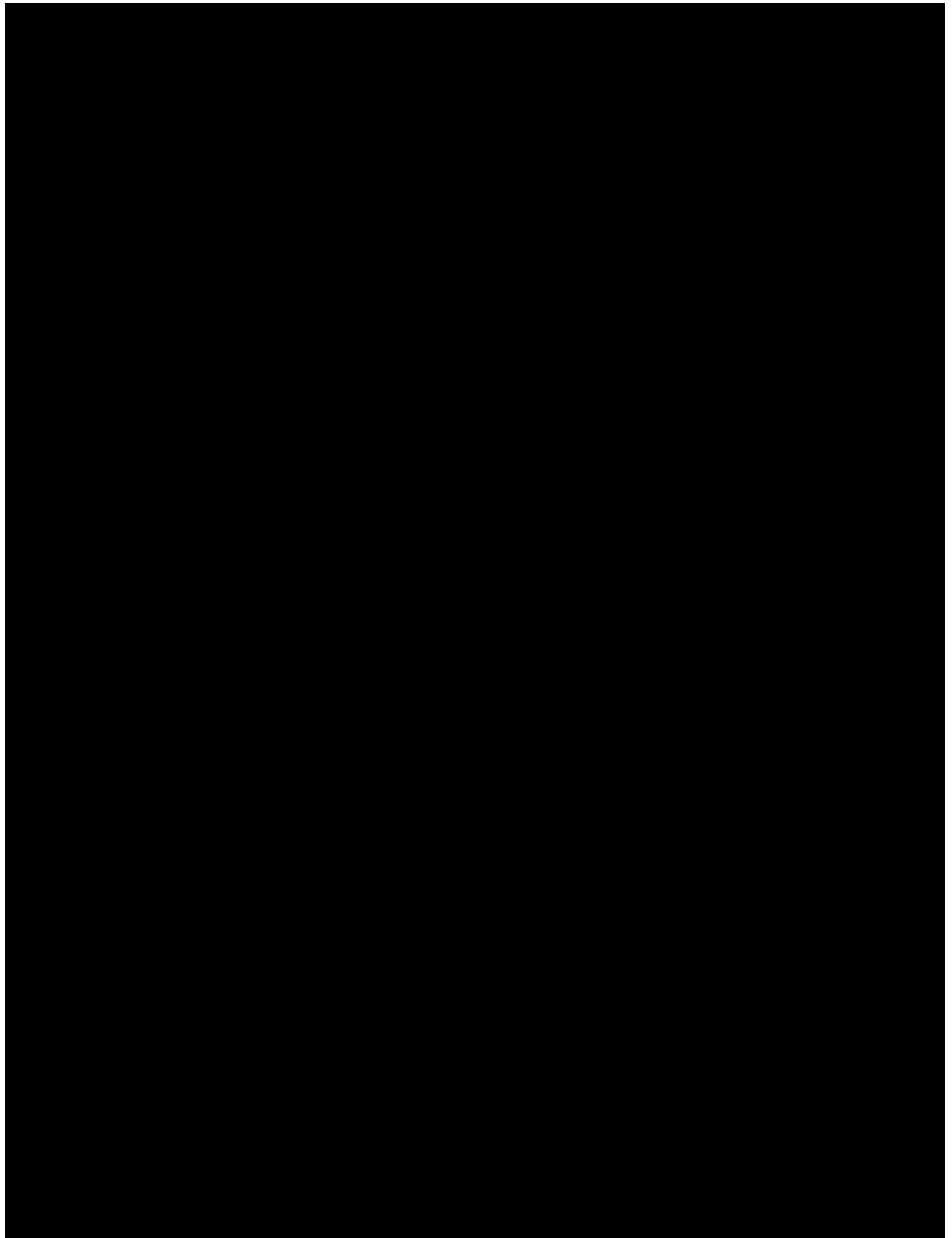






1.6.4.1.14 EU Smart Card Printing/Encoding





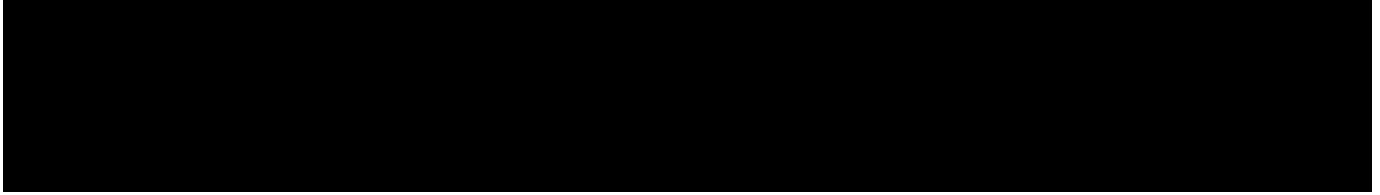
1.6.4.1.14.3 Customer Service Terminal - Mobile – EU Smart Card Printing/Encoding

INIT has include the HID FARGO DTC1250e as a smaller card printer to be used for the mobile CST operations based on the agencies note about desiring a more compact option for mobile usage. When card-printers are reduced to a certain size, the extent of the technology and capability are also reduced. While INIT considers the DTC1250e a superior printer in it's class based on speed, quality and ease of use, it is a different class of printer then the proposed solutions for both CSO and Mail Center. As such, there is an expected difference in speed and quality when leveraging this class of device, and INIT recommends the agency confirm its desire to prioritize size over product consistency. The DTC1250e is a single side, 300dpi, edge-to-edge printer with a 100 card hopper. INIT has included 12 of these devices as identified in the price sheet.



DTC1250e Card Printer

1.6.4.1.15 Customer Service Terminal – Uninterruptible Power Supply



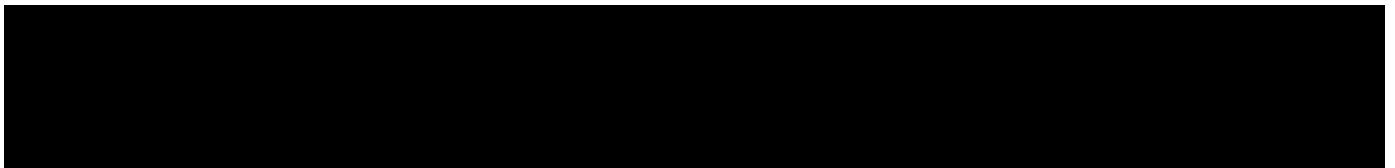
1.6.4.1.16 Customer Service Terminal – USB HUB

A Tripp Lite 10-port USB hub is included to ensure enough USB connections and power for the variety of USB devices, printers, and peripherals included for the Customer Service Terminal.

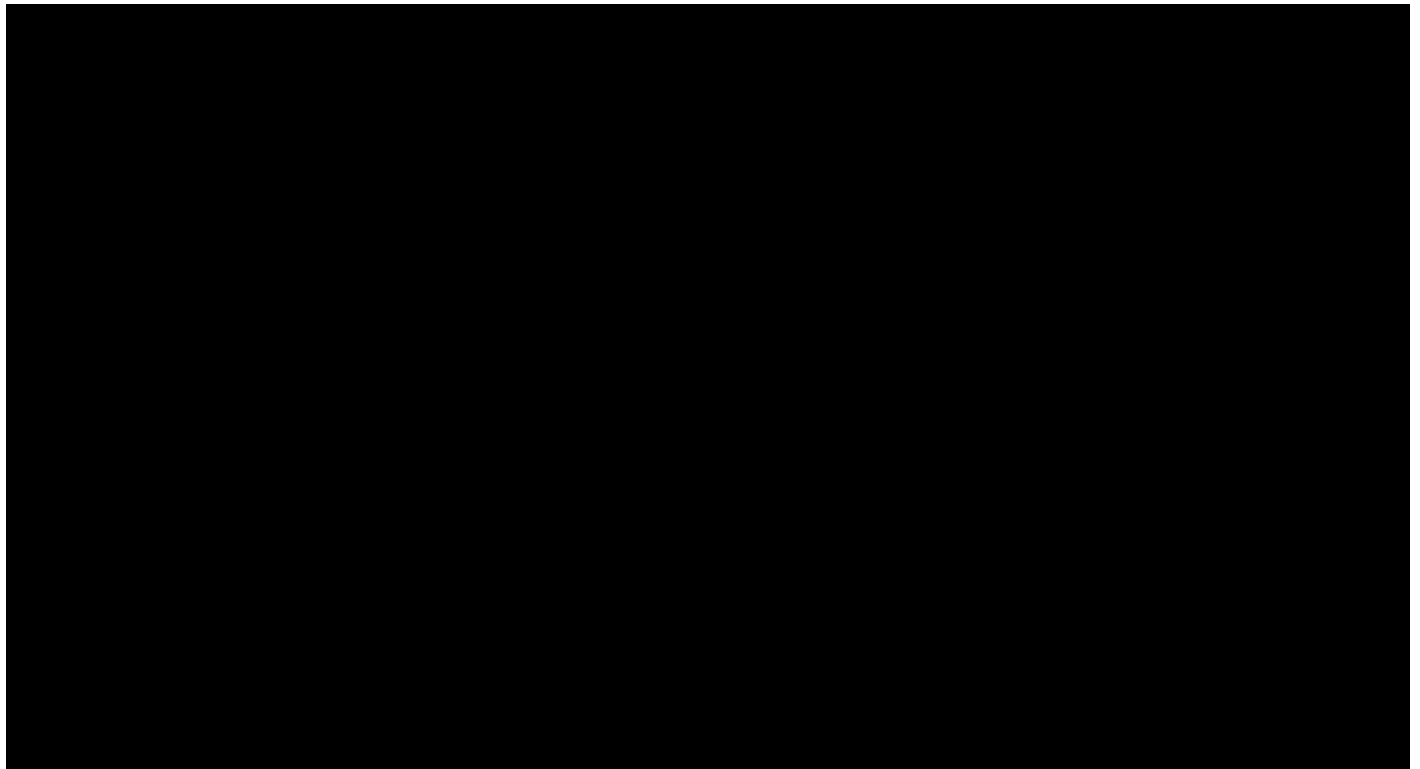
1.6.4.1.17 Customer Service Terminal – Communications

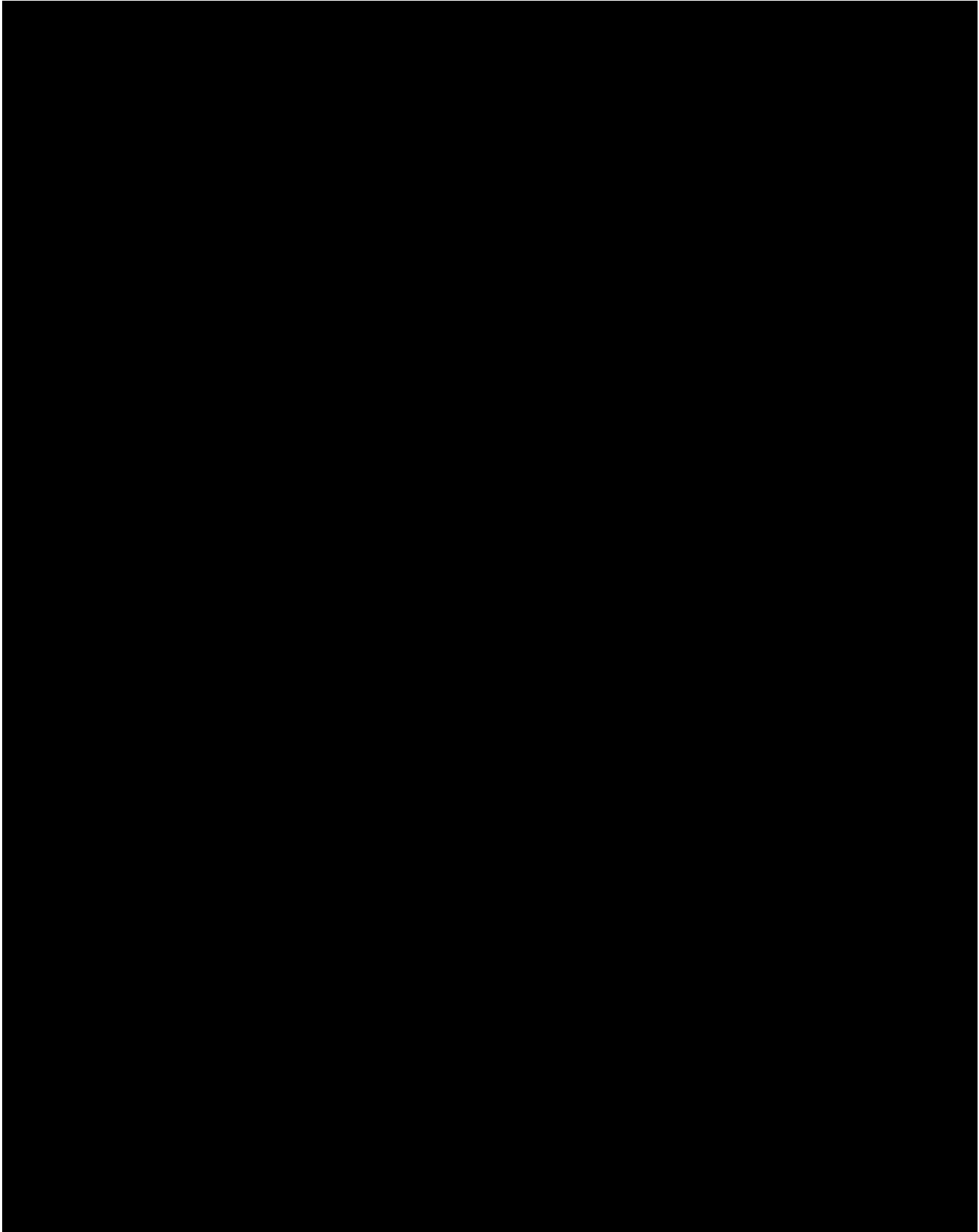
Communications to the Customer Service Terminal will be through either the wired or wireless interface of the HP EliteBook laptop.

1.6.4.2 Software and Operations



1.6.4.2.1 VarioCSW Overview







1.6.4.2.2 Anti-Virus

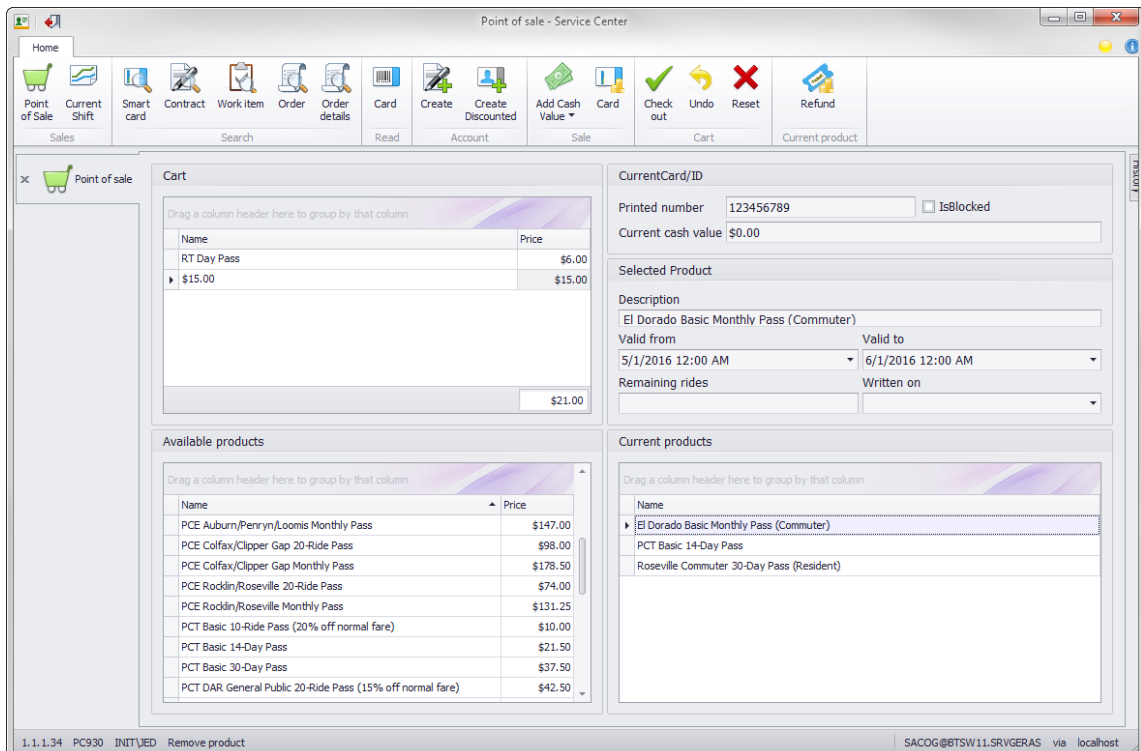
1.6.4.2.3 Security

1.6.4.2.4 User Interface

1.6.4.2.4.1 Point of Sale

The Point of Sale view is designed to quickly sell products, passes and cash value loads in a customer service counter environment.

The point of Sales window is the main interface to perform sales to the customer in a fast and efficient manner. The Sale area consists of the Cart and the Available Products. The Available Products display a list of all items, which can be sold in the current context. Selecting an item will add the item into the Cart. The Cart collects all items of the current sale, so that they can be processed on block. The 'check out' completes the current sale. The Cash up dialog is displayed and further selections are provided to complete the payment (e.g. select split payments). Once the payment is completed, a receipt will be printed.



Point of sale - Service Center

Home

Point of Sale, Current Shift, Smart card, Contract, Work item, Order, Order details, Card, Create, Create Discounted, Add Cash Value, Card, Check out, Undo, Reset, Refund

Sales, Search, Read, Account, Sale, Cart, Current product

Point of sale

Cart

Drag a column header here to group by that column

Name	Price
RT Day Pass	\$6.00
▶ \$15.00	\$15.00
\$21.00	

Available products

Drag a column header here to group by that column

Name	Price
PCE Auburn/Penryn/Loomis Monthly Pass	\$147.00
PCE Colfax/Clipper Gap 20-Ride Pass	\$98.00
PCE Colfax/Clipper Gap Monthly Pass	\$178.50
PCE Rodlin/Roseville 20-Ride Pass	\$74.00
PCE Rodlin/Roseville Monthly Pass	\$131.25
PCT Basic 10-Ride Pass (20% off normal fare)	\$10.00
PCT Basic 14-Day Pass	\$21.50
PCT Basic 30-Day Pass	\$37.50
PCT DAR General Public 20-Ride Pass (15% off normal fare)	\$42.50

CurrentCard/ID

Printed number: 123456789 ☐ IsBlocked

Current cash value: \$0.00

Selected Product

Description: El Dorado Basic Monthly Pass (Commuter)

Valid from: 5/1/2016 12:00 AM Valid to: 6/1/2016 12:00 AM

Remaining rides: Written on:

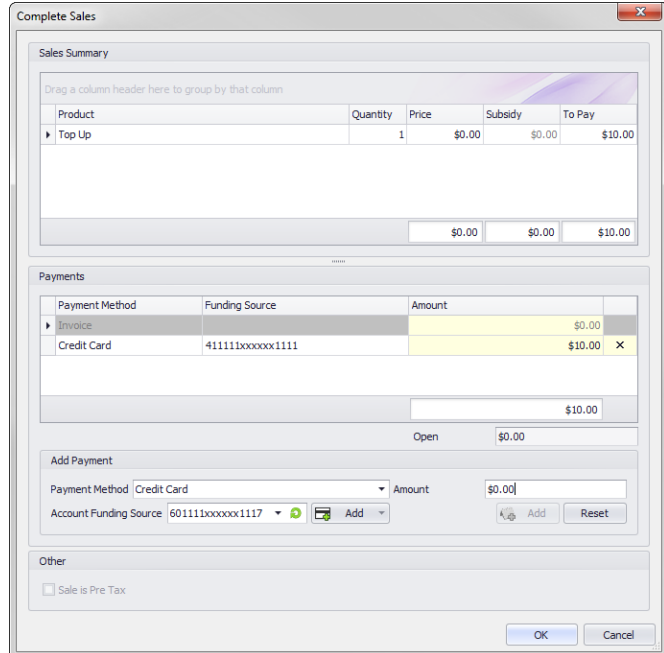
Current products

Drag a column header here to group by that column

Name
▶ El Dorado Basic Monthly Pass (Commuter)
PCT Basic 14-Day Pass
Roseville Commuter 30-Day Pass (Resident)

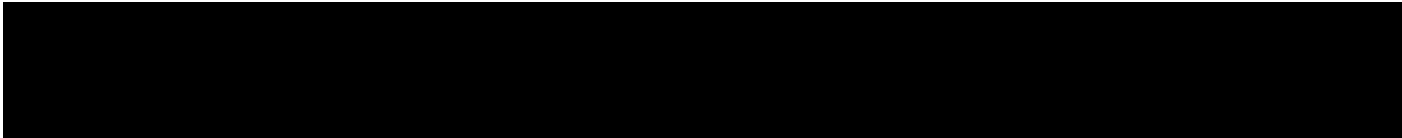
1.1.1.34 PC930 INITUED Remove product SAGOG@BTSW11.SRVGERAS via localhost

Point of Sale View of the CSW



Payment completion dialog

1.6.4.2.5 VarioCSW for Customer Support



1.6.5 INIT's Product Development Philosophy and Roadmap

INIT's Product Development Philosophy and subsequent Roadmap is based on industry proven design. We evaluate product changes regularly, with an eye towards evolution not revolution. Instead of developing some mythical ideas about what our future products may look like in 5 years (which nobody can accurately predict), INIT utilizes a INIT's Product Development Philosophy based upon the utilization of industry proven design that can be used to update existing proven products with new technology as it evolves and matures.

Hardware

INIT's Product Roadmap philosophy in regards to hardware is to develop products that meet new technical standards and innovations while making re-use of industry proven design whenever possible. What industry proven design means for INIT is as follows:

- Select only Industrial grade electronic components with assurances of Long Term Availability

- Re-use Proven Circuits and Components (i.e. power supply filtering, watchdog timers, input signal protection, etc.)
- Apply Proven Industrial Housing Materials that meet all current environmental standards
- Use Backwards Compatible Brackets and attachment that are compatible with INIT's previous products
- Use Backwards Compatible Connectors and Signals of proven design
- Use widely used COTS components wherever possible (for example the FEIG reader in PROXmobil3 and the internal components of the TVMs)

At INIT product innovation follows technology trends and availability. We evaluate product changes regularly, with an eye towards evolution not revolution. New technologies that INIT is currently investigating include such things as: Bluetooth LE (near field communications), Be-In/Be-out with Bluetooth beacons, Palm Vein recognition.

Back-office / MOBILEvario

- Maintain and enforce Open Architecture Standards. Implement additional solutions, protocols and applications according to Open Standards (industry standard, web standards) rather than proprietary solutions. Maintain and enhance MOBILEvario as the Core of the open architecture ticketing system.
- Maintain and enhance the Open Architecture APIs for enabling easy and flexible integration and add new functionality to APIs to meet new technologies (like we have done for virtual cards). Provide professional support and documentation for vendors of the client solutions.
- Provide Web Based User Interfaces for MOBILEvario operation and configuration. Work with 3rd party UI/UX designers to guarantee Optimal Usability and User Experience.
- Enhance Open Data for agencies. Ensure that the agencies have full and complete access to their data and sufficient information and support to use it.
- Enable more Local Developers and Organizations to implement innovative sales and ticketing solutions utilizing the INIT open architecture APIs.
- Enhance and maintain large scale multi-agency scalability for use in very large scale projects.
- Enhance the monitoring capabilities in respect to performance and KPIs. Improve reporting capabilities for the KPIs.
- Provide more service based solution application (SaaS).

- Develop and extend the open architecture APIs to support all aspects of MaaS (mobility as a service). INIT has currently 2 teams concentrating on MaaS solutions.
- Provide more App Based Solutions based on standard hardware rather than proprietary devices (for example inspection and sales, on demand traffic etc.).
- Maintain and enhance PCI-Compliance of the overall system. Provide means to minimize the PCI burden for the agencies. Provide readiness for full PCI-P2PE certification.

1.7 INIT's User Friendly and Intuitive Website and Mobile Applications

Specifically for Website and Mobile Application (Scope of Work Section 5):

- Provide your proposed subcontractor's development methodology for the following items:*
 - Customer account website*
 - Content management system*
 - Customer mobile app*
 - Agency mobile apps*
- Provide previously designed website URLs and credentials to websites developed by the proposed provider.*
- Describe how the proposed UI/UX solution provider will design a common user experience across multiple platforms.*
- Provide a draft licensing agreement(s) for items in this section.*

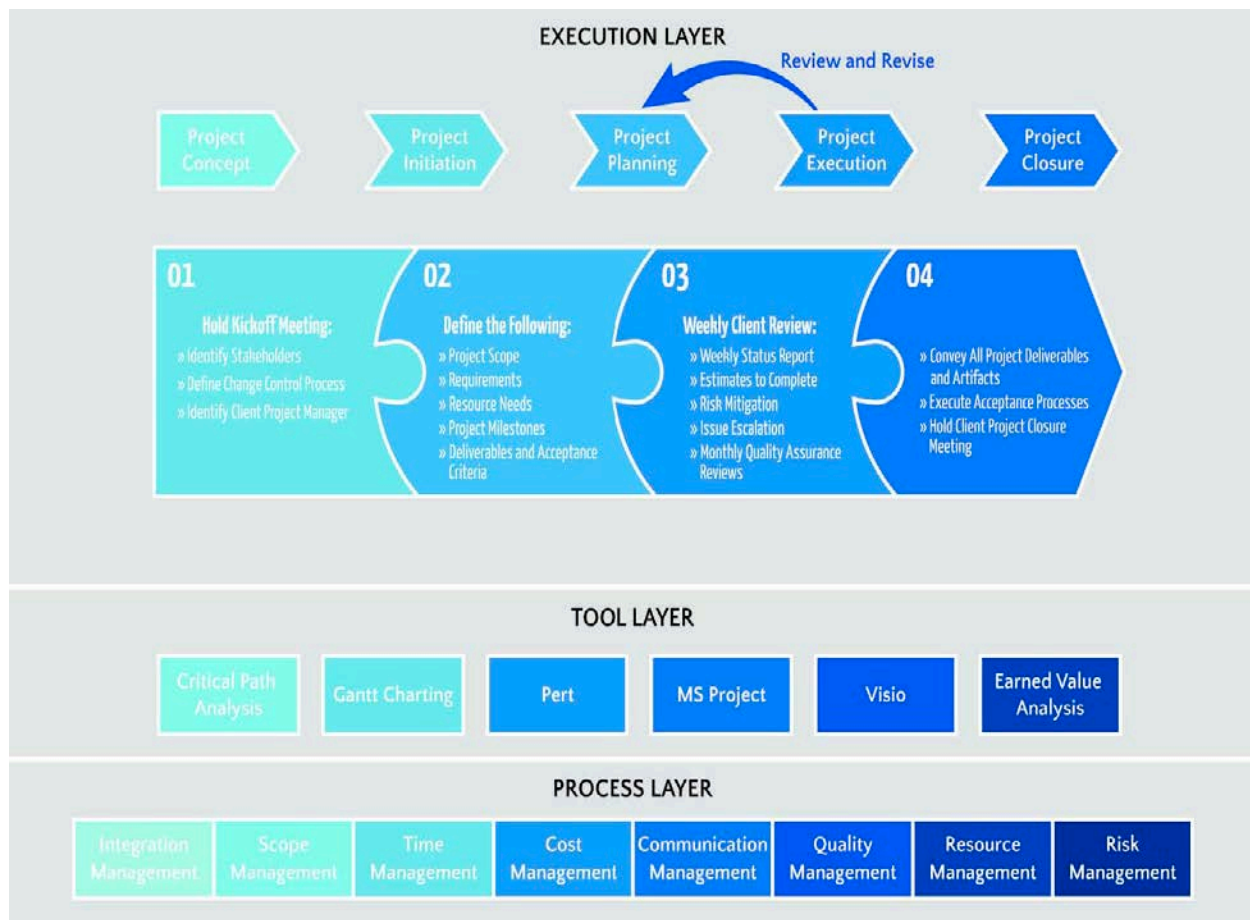
For the externally sourced applications, INIT is proposing:

- Marathon Consulting for the public facing website
 - Marathon has extensive experience with website development and strong proven AFCS track record having successfully partnered with INIT on the Portland, Tampa, Grand Rapids and Honolulu AFC system websites. INIT owns the Intellectual Property rights of the proposed Marathon Solution.
- Bytemark, Inc. for the customer mobile app and the virtual ticket
 - Bytemark is an industry leading transit mobile app developer and has successfully partnered with INIT in Austin, Tampa and Grand Rapids
- E-BROS for the agency validation and inspection apps
 - E-BROS is mobile app developer and has a proven track record with INIT having developed the agency apps for INIT's Grand Rapids and Honolulu AFC systems

1.7.1 Marathon's Proven AFC Websites

1.7.1.1 Marathon's AFC Website Development Methodology

When Marathon undertakes a project, Marathon will execute a proven methodology known as the Marathon Project Management Methodology (MPM). A graphic representation of the MPM is below.



MPM

The MPM is a cost-effective, repeatable methodology that provides the client, the project stakeholders, and the project team with a consistent management and communication tool. The MPM embodies the following characteristics:

- Defined Requirements and expectations
- Defined Work Plans, with estimated hours, costs, and Phase milestones

- Defined Deliverables, by Phase
- Defined client Review and Acceptance procedures
- Scope Control through a defined Change Management procedure
- Defined Risk Management procedures
- Regularly scheduled Project Status Review Meetings with the INIT project manager and Agencies
- Written Weekly Project Status Reports, stating project actual performance versus the plan, identified risks and remediation plans, pending Change Requests, and Open Issues impacting the project
- Consistent emphasis on client Involvement throughout the project – client involvement is an essential component in all of Marathon's work. Marathon takes great care to ensure that important stakeholders are involved in the project and their input is included
- Effective Knowledge Transfer to client's staff

1.7.1.1.1 Management Plan

A Marathon web portal project consists of the following phases: Analysis, Design, Development, Testing, and Deployment. Quality is built into each phase of a web portal project through close client collaboration, approved deliverables, and testing. Below is a description of each phase and how it contributes to producing a superb solution.

1.7.1.1.1.1 Analysis

In the Analysis phase Marathon will work closely with INIT, INIT's UI/UX partner (Anthro-Tech), and the Agencies to validate the web portal requirements. The result of this analysis will include the detail output as defined by Anthro-Tech and a detailed Requirement Specification for which Marathon will define the build against. This document records the feature requests and how the web portal meets those requirements. This is accomplished in the following sections:

- **Requirements** – this section records each requirement that pertains to the web portal. Each requirement is mapped to a web portal feature or page that satisfies the requirement
- **Pages** – this section documents the global web portal features and each page required to meet client's requirements. Each page description includes a set of "ability to" statements and a list of use cases required to implement those "ability to" statements. Also, each item in this section is linked to a Test Case that ensures every "ability to" statement is met

- **Use Cases** – this section documents each use case. The use case is a process flow that includes how the web portal interacts with the INIT MOBILEvario application and Agencies' chosen payment gateway

Finally, the Requirement Specification remains a working document throughout project execution and is kept up to date so there is always a clear understanding on what the web portal will include.

1.7.1.1.1.2 Design

INIT's UI/UX partner, Anthro-Tech, will guide the Agencies through a user-centered design process. As an output for this process and efforts, Marathon will produce the following design deliverables specific to the web portal:

- Style Tiles
- Site Map
- Wireframe / Mock-ups for each page

1.7.1.1.1.3 Development

Marathon's Development phase combines the work done in Analysis and Design to build out the web portal pages. Specifically, the Marathon Developer's use the UX/UI-approved Design Mock-ups and Requirement Specification to guide their work. Page development goes as follows:

1. Application set-up:
 - a. Set-up Umbraco content management system
 - b. Set-up Development environment. Use the web portal base to save implementation time
2. Page Building:
 - a. Create pages in accordance with approved designs and requirement specification
 - b. Customize web portal base to meet unique client requirements
3. Internal Testing – there are four steps of internal testing:
 - a. Design –validate page matches approved design
 - b. Cross-Browser and Device – validate page works according to design
 - c. Functional – validate the page meets the functional requirements

- d. ADA – validate the page meets WCAG 2.0 level AA standards for accessibility compliance
4. Rework and Issue Resolution – correct issues identified in Internal Testing

1.7.1.1.1.4 Testing

This Testing phase corresponds to the web portal Factory Acceptance Test (FAT). In this phase INIT and the Agencies will use the Marathon Test Plan and Test Cases to validate the application meets the requirements. FAT process includes the following:

1. Build Test Plan and Test Cases. Map Test Cases to client requirements via the Requirement Specification
2. Setup the Test Environment and Deploy Applications
3. Review testing process with INIT and the Agencies
4. Commence Testing:
 - a. Marathon, INIT, and the Agencies execute Test Cases and record issues
 - b. INIT, the Agencies, and Marathon review and triage issues. Categorize the issues into the groups fix, defer, and new requirement
 - c. Marathon resolves assigned issues and updates application
 - d. INIT and the Agencies verify issues are resolved
5. FAT is complete when all Test Cases have been executed and passed. A Test Case is passed when all assigned issues are resolved and approved by the Agencies

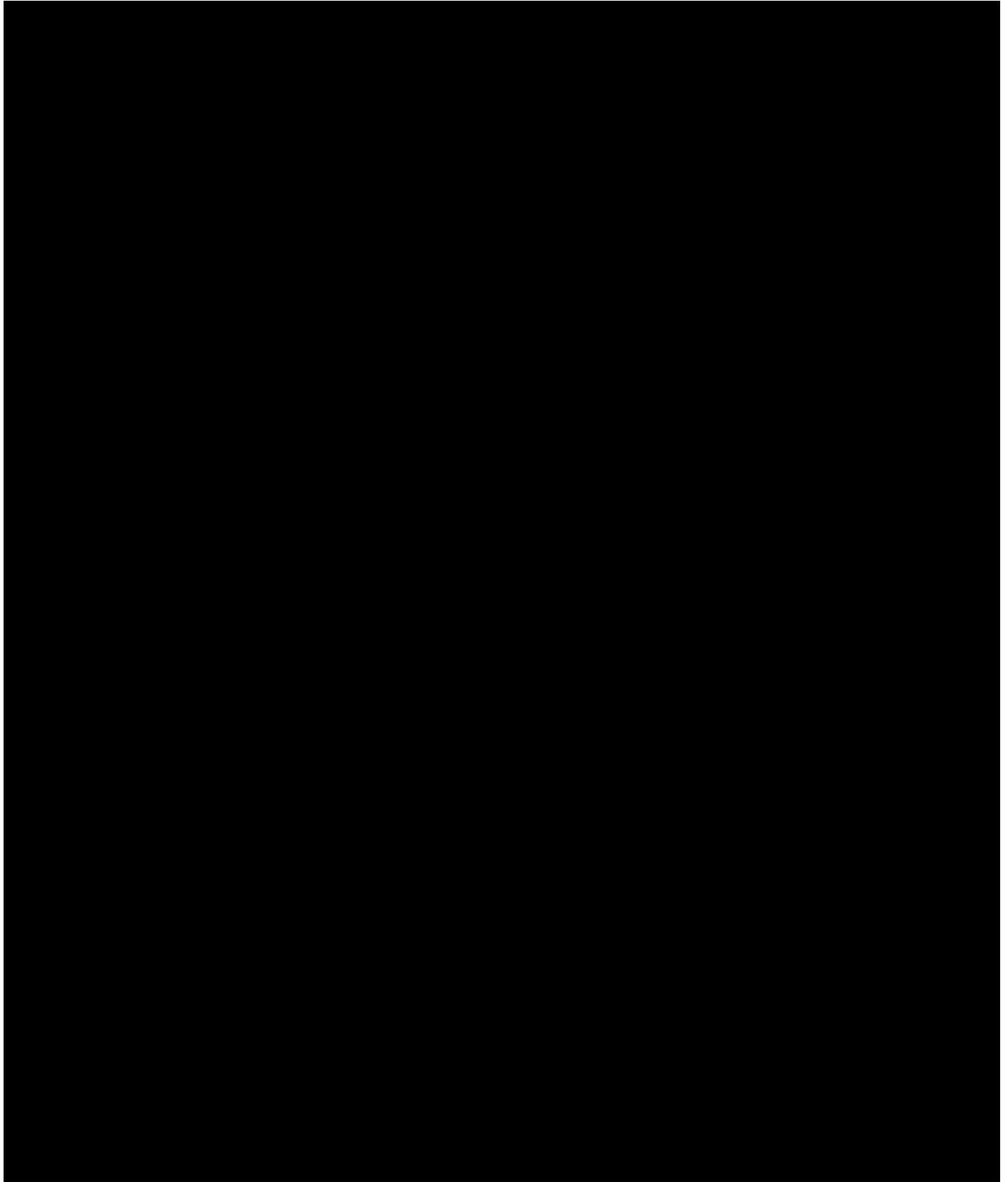
The above process is completed for each page and system required to deliver the portal requirements.

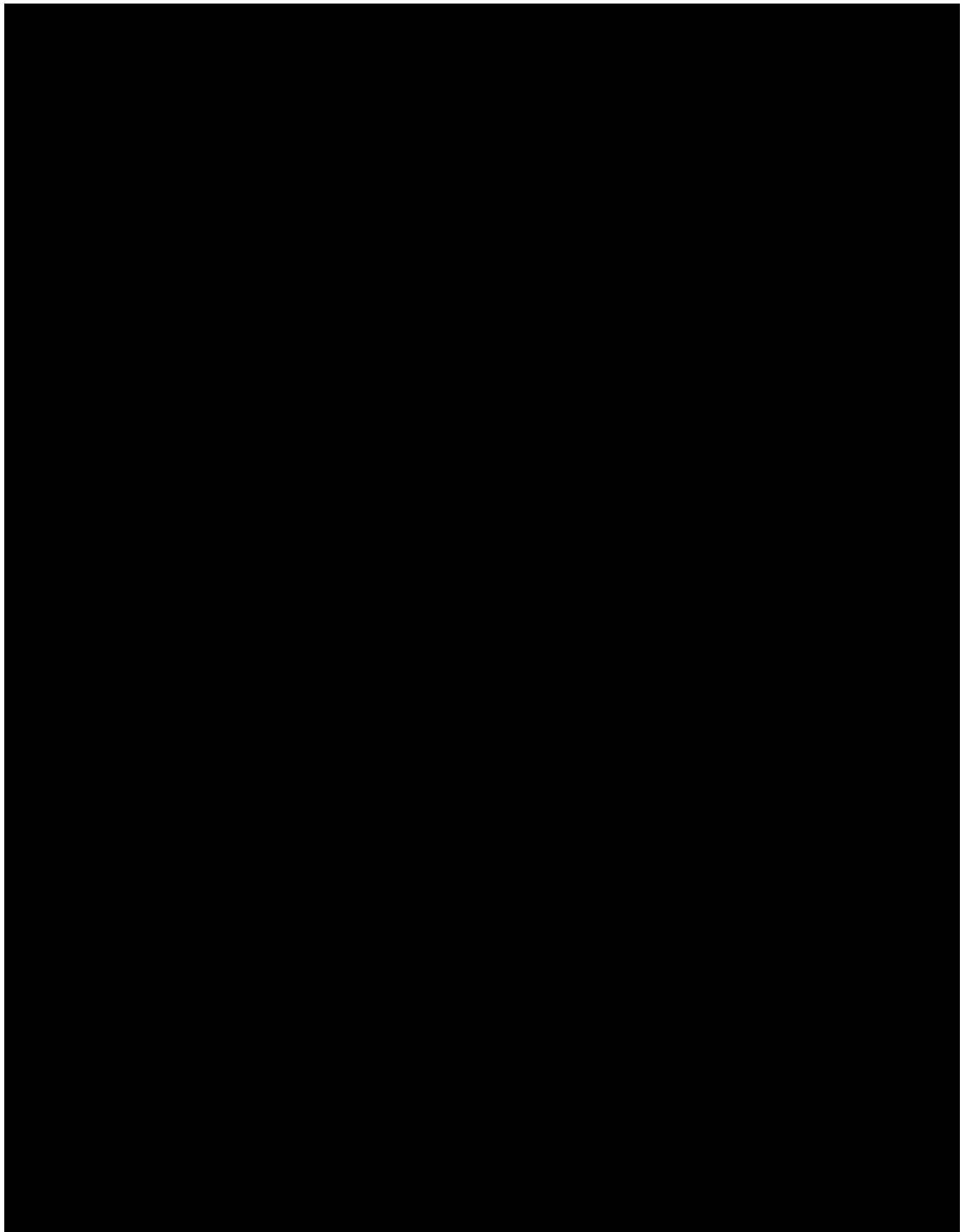
1.7.1.1.1.5 Deployment

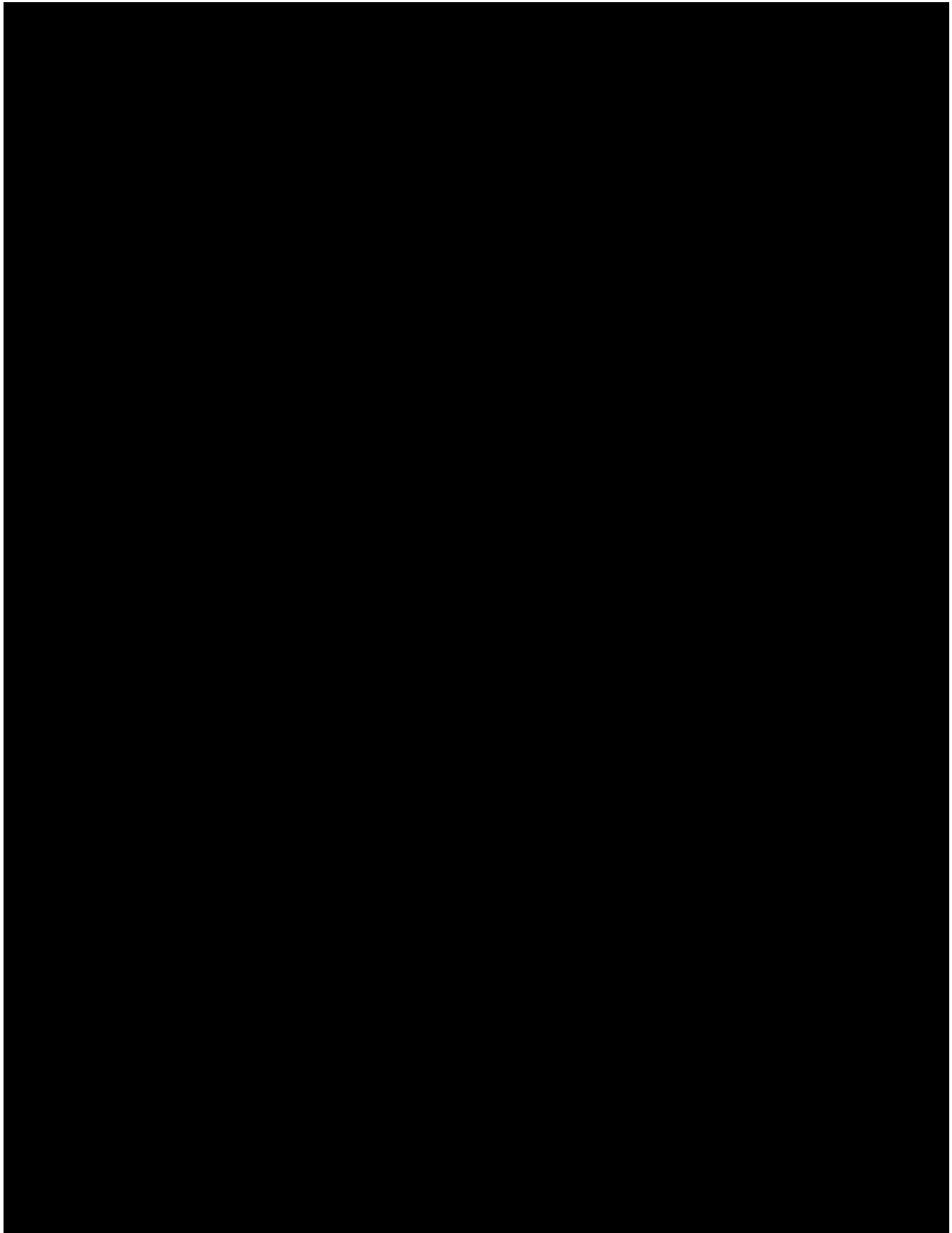
After FAT there are several more phases of deployment and testing before the overall transit solution is deemed ready for the public. These testing phases are integration tests that include the INIT systems and the web portal. Also, these tests may include the introduction of end-users/customers in the later phases as defined as part of the user-centered design approach with Anthro-Tech. But each of these tests mirror the same process described in the Testing Phase.

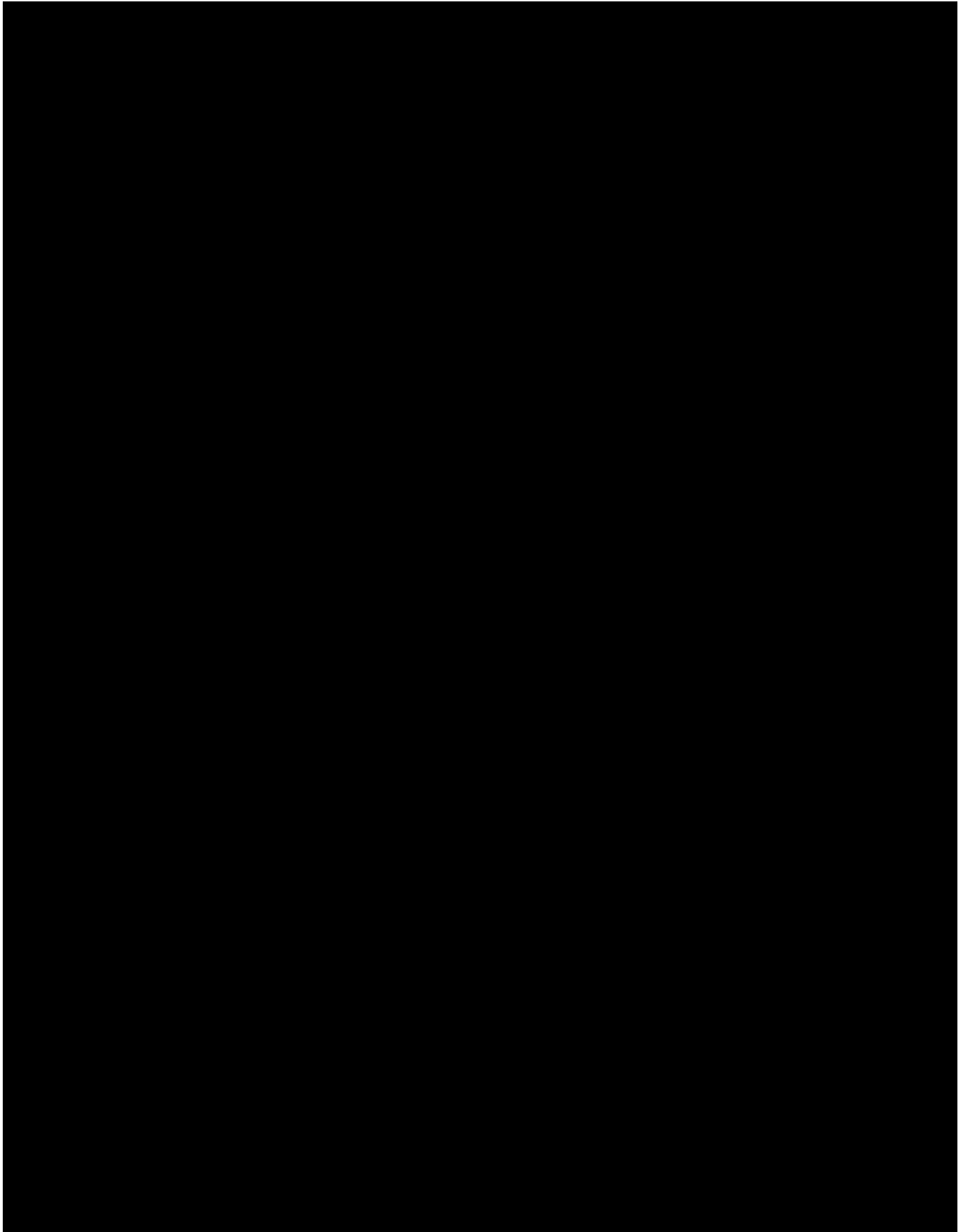
During this stage, Marathon will plan the test cases, configure the environment, deploy the application, run the tests, record any issues, and correct issues and update the software.

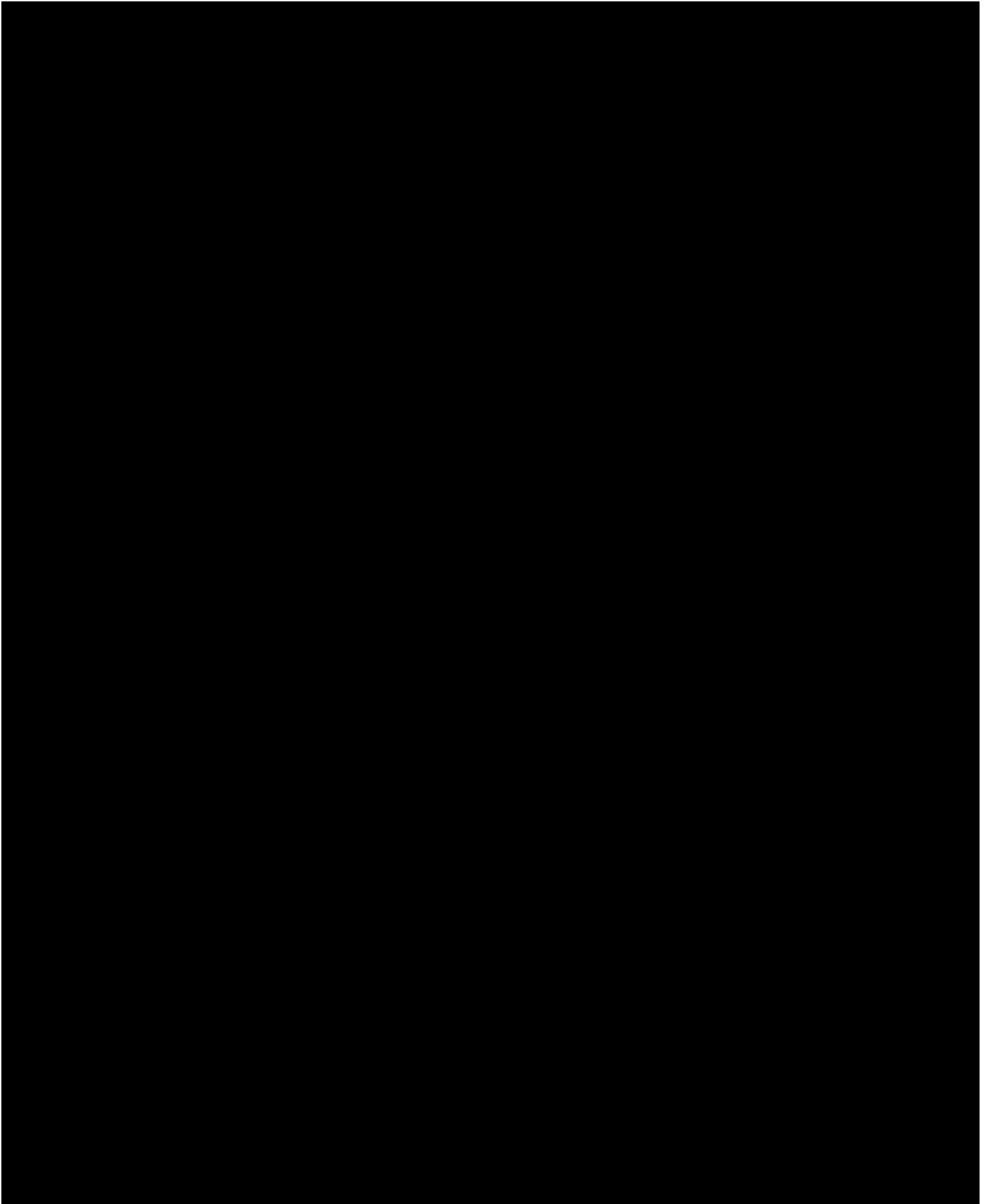
1.7.1.2 Marathon's Live AFC Websites











1.7.2 Bytemark's Proven Mobile AFC Apps

Founded in 2011, Bytemark is an international provider of fare collection technology employing over 90 talented individuals globally located in offices in New York, Seattle, Toronto, the UK, Australia, and India. Bytemark's core offering is a comprehensive suite of products that digitize transit passes, tickets and fare media in a variety of innovative ways. Purchase of these fare products by transit riders is simple and instantaneous by means of web-based and smartphone-based purchasing experiences. Agencies are provided with powerful fare validation solutions, and cloud-based access to a full-suite management portal to manage and report on their operation.

1.7.2.1 Core Services and Products Produced

1.7.2.1.1 Mobile Applications

We build *native* apps for iOS and Android operating systems. Unlike other providers, we do not use port code using an automated development environment ensuring that our apps are enhanced for the user experience.

- Feature Rich: Purchase, Activation, Profile Management, Information Tools
- Off-the-shelf base package capable of customization
- Agency specific branding

1.7.2.1.2 Focused on the User Experience

Systems defined with a refined purchase process and intuitive User Interface that makes purchasing as simple as possible. User sign-in and registration are facilitated through social sign-ins that allows users to sign-in with existing accounts from Facebook and Google+. Payment card credentials (such as credit, debit, stored value) are registered once by the user and securely stored on account for future use. Following strict security policies, account numbers are never stored on the device itself.

1.7.2.1.3 Accessibility Features

Mobile applications designed with accessibility in mind that comply with industry standards. Native accessibility features, and where supported, that include voice-over compliance on all screens and instructions in place of visual tutorials. Support for legally blind users is also incorporated into the solution and offers the most user-friendly experience possible.

1.7.2.1.4 Scalable Cloud Architecture

Our cloud hosted solution provides clients with security, flexibility, and scalability.

- Amazon Web Services (AWS)
- Multiple Data Centers
- Geographic Redundancy

1.7.2.1.5 Security & PCI Compliance

We understand that security is of the utmost important to the agency and its customers. That's why our system is a PCI Level 1 certified provider and a Visa and MasterCard network approved merchant services provider.

- PCI Level 1 Certified
- Any data that is considered personal or proprietary is encrypted with military-strength cryptography when stored or transmitted.

1.7.2.2 Proven and Ready

Bytemark's mobile ticketing technology and applications are proven solutions, with mobile ticketing systems operating in:

- King County Metro - Seattle, WA
- Sound Transit - Seattle, WA
- Seattle Streetcar - Seattle, WA
- King County Water Taxi - Seattle, WA
- Seattle Monorail - Seattle, WA
- New York Waterway - New York, NY
- NYC Ferry - New York, NY
- Capital Metropolitan Transportation Authority - Austin, TX
- Northern Indiana Commuter Transportation District - Chicago, IL
- Massachusetts Department of Transportation - Boston, MA
- Metrolinx - Union Pearson Express - Toronto, ON
- York Region Transit - York, ON
- Hillsborough Regional Transit Authority - Tampa Bay, FL

- One Ticket – Edinburgh, Scotland
- Sacramento Regional Transit – Sacramento, CA
- Metropolitan Atlanta Rapid Transit Authority – Atlanta, GA
- Des Moines Area Regional Transit Authority – Des Moines, IA

Along with our existing deployments, Bytemark and its subsidiaries are currently developing / deploying mobile ticketing systems for:

- The Rapid – Grand Rapids, MI
- Rhode Island Public Transit Authority (RIPTA) – Providence, RI
- Rotterdamse Elektrische Tram (RET) – Rotterdam, Netherlands
- Warsaw Public Transport (ZTM) – Warsaw, Poland
- San Mateo County Transit District (SamTrans) – San Mateo, CA
- Nashville MTA — Nashville, TN
- Delaware Transit Corporation (DTC) —Wilmington, DE

1.7.2.3 Regional and Multi-Agency Solutions

Bytemark has extensive experience offering multi-agency shared mobile applications. In Seattle we are working with five individual agencies (King County Metro, Sound Transit, Seattle Streetcar, King County Water Taxi, and Seattle Monorail) participating in one unified mobile application. Each agency receives their own daily settlement in their bank account. Back offices are separate to allow each agency to manage their products, branding, and reporting.

Bytemark also provides an integrated mobile application in the State of Massachusetts for private bus operators in partnership with MassDOT. The BusPlus program incentivizes private bus operators to provide new regional transportation services to increase intercity and commuter transportation options available across the Commonwealth and New England.

The proposed mobile solution will take advantage of all the same ABT features as the physical ngORCA card. All transfers and revenue share will be handled by MobileVario.

1.7.2.4 Collaboration & Integration with INIT

Starting in 2013, Bytemark and INIT have delivered a series of joint fare-collection solutions. Most recently, INIT and Bytemark have collaborated on projects such as The Rapid mobile app in Grand Rapids, MI and also similarly with The Flamingo Fares app with Hillsborough Area Regional Transit Authority (HART) out of Tampa, FL to provide an account management app. In both projects Bytemark utilizes INIT's account-based system (MOBILEvario) as the ticketing and customer account backend. Additionally, these projects also utilized INIT's MOBILEvario to deliver tokenized fare media to the Bytemark mobile app that is represented as a QR code or

NFC payload. Through these deployments, Bytemark has successfully realized in-depth and service-proven integrations with INIT utilizing the MOBILEvario central back office and open API's. Through these efforts, together we have brought to market a proven solution of Bytemark mobile validation via INIT validators.

We believe our organizational and operational partnership has strengthened the mobile offering of both Bytemark and INIT. With over four (4) years of collaboration we have the capability to provide a best-in-class mobile ticketing application that integrates seamlessly with INIT's powerful back office. Bytemark and INIT have been contracted for the following joint deployments:

- Capital Metropolitan Transportation Authority — Austin, TX
- NYC Ferry — New York, NY
- The Rapid — Grand Rapids, MI
- Hillsborough Area Regional Transit Authority — Tampa Bay, FL
- Rhode Island Public Transit Authority — Providence, RI
- Nashville MTA — Nashville, TN

A. The proposal emphasizes experience with visual ticketing rather than the NFC mobile credential as stated in the SOW. The proposal fails to demonstrate an understanding of the relevant capabilities.

We understand that visual validation will not be utilized as part of this solution.

As noted in our revised submission, the NFC payload will be provisioned from the Init MOBILEvario Back Office and provisioned directly to the respective mobile wallet.

B. Concern that the proposal states the proposed solutions are in service as of today, i.e. Flamingo Fares Tampa Bay and The Rapid mobile app. The proof of concept approach cited on pg. 197 is not supported by Apple and will not be acceptable for the next gen ORCA program.

FlaminGo Fares is a multipart project. To clarify further, the first stage, a "fast track" standalone app was delivered by Bytemark and is live.

The Rapid Mobile app is stated as "In Development" under **Duration of Contract** on the previously provided Bytemark References.

ORCA is correct that the proof of concept approach cited as part of our previous NFC experience is not currently supported by Apple. We provided this not as a proposed solution but

under our Experience demonstrating our commitment to innovating on iOS. At the time, Apple provided us with the SDKs validate NFC Loyalty Cards on test validators. We couldn't have created this without Apple's assistance but ultimately, they decided against this approach for the transit market.

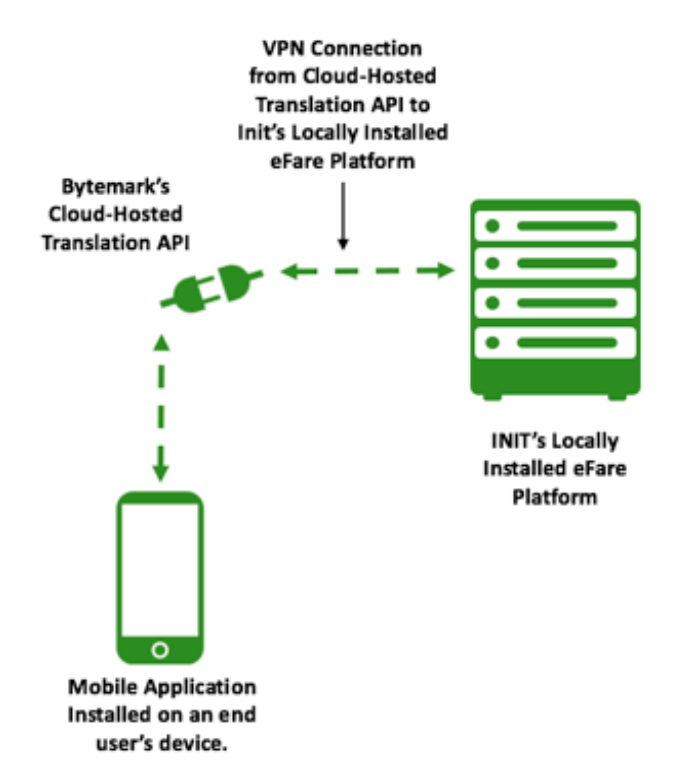
1.7.2.5 Unified Solution for ORCA

To provide ngORCA with a robust Customer Mobile App, the proposed solution is an integrated Bytemark and INIT deployment. The INIT MOBILEvario Back Office will provide the customer account management features, and the Bytemark developed mobile app will interface with INIT's MOBILEvario API's to enable these functions in the mobile app user interface. The required features will include a user's ability to manage account information, password and password reset, reloading of fare media, purchasing fare products and new fare media, provisioning NFC credentials, etc.

D. Proposal needs detailed information about the mechanics for use of the proposed mobile credential using Android (Google Pay) and iOS (Apple Pay). It appears that this section was authored by Bytemark, and it appears that there is a lack of understanding of the SOW Capability 5.2-13.

We recognize the feedback regarding account management and NFC provisioning. To clarify, the mobile application utilizes APIs from the Init MOBILEvario Back Office and is in essence, the INIT mobile solution provided by Bytemark. In the event the Region would like to procure the mobile app solution separately, significant development would need to be completed to replicate this existing integrated experience.

The following is a description and diagram that details of the path of communication between the mobile application and Init's platform. The Bytemark translation API communicates directly with the local installation of Init's platform via secure VPN connection. The VPN connection is maintained by both Bytemark and the party responsible for the upkeep of the onsite network environment.



For ngORCA, the INIT back office will be responsible for the delivery of account-based fare media to NFC-capable devices. For Google Pay, a “Save to Google Pay” button will be implemented in the mobile app to initiate the provisioning of fare media to the Google Pay app. The app will receive all information from the INIT back office to allow the user to sign into their Google account, authorize the provisioning of the transit card to their device, and have the fare media appear in their Google Pay app. When made available by Apple, we will deploy a unified approach for Apple Pay integration.

The Bytemark and INIT integration is completely built around an Account Based Ticketing (ABT) platform. The customer solution provides a passenger with the ability to manage multiple fare media accounts simultaneously. Whether it's adding funds or purchasing a product, changes are reflected in the ABT system immediately. Unlike an NFC top-up system, the passenger doesn't even need to have the physical ORCA card on them. For instance, a parent could manage their children's' accounts remotely without providing the children with their credit card number. The Customer App is completely cross-platform and does not rely on NFC hardware or software compatibility for managing physical media.

1.7.2.5.1 Experience with NFC Validation and Contactless Technology

Beginning in 2013, Bytemark has worked with NFC and Bluetooth technology as a method for fare validation. These solutions have encompassed both mobile generated fare media and custom validation solutions.

2013 - Bytemark delivered a proof-of-concept to Capital Metro Transit Authority in Austin, TX to present an NFC ticket in the CapMetro app and have it read by Bytemark's Merchant Mobile Handheld Validator. Android Host Card Emulation was used to emulate the ticket as a MiFare DESFire virtual card on only an Android device. Bytemark's Merchant Mobile Handheld Validator was integrated with a ISO/IEC 14443 Grabba attachment to read smartcards and NFC devices.

2014 to Present - Bytemark's Merchant Mobile Handheld Validator is currently used in the field today by CMTA to read and validate MiFare Classic cards. The Fare Enforcement App that we deployed validates third party fare media from GenFare including MiFare Classic contactless cards as well as existing magstripe tickets.

2017 - Bytemark developed a proof-of-concept utilizing the NFC Value Added Service (VAS) Protocol to create NFC tickets on an Apple iOS device. The VAS protocol is a standard for NFC virtual loyalty cards. A virtual card was stored in Apple Wallet and brought to the foreground upon coming in near contact with a NFC reader. A validator was developed in-house with a Feig reader to read the NFC virtual loyalty card and display the validation results. The proof-of-concept was implemented for exploratory and demonstration purposes.

1.7.2.5.2 Bluetooth Validation for FutureRailway-UK Rail and Safety Standards Board (RSSB)

Bytemark subsidiary, ByteToken developed a Bluetooth LE validation system as a proof of concept for the UK FutureRailway group with funding from the Rail Safety and Standards Board (RSSB). ByteToken delivered their AirGate solution, a hands-free validation system built for gated and ungated environments.

AirGate comprises the following components:

- BLE Beacons
- Antennas
- 3D Camera
- Controller Module

The BLE beacons and associated antenna array locate the position of the user relative to the gate line, a 3D camera tracks the user as they approach, and a controller application manages the interface between the software components of the system, as well as the fare gate. These components can be configured to suit the requirements of the environment in which they've been placed.

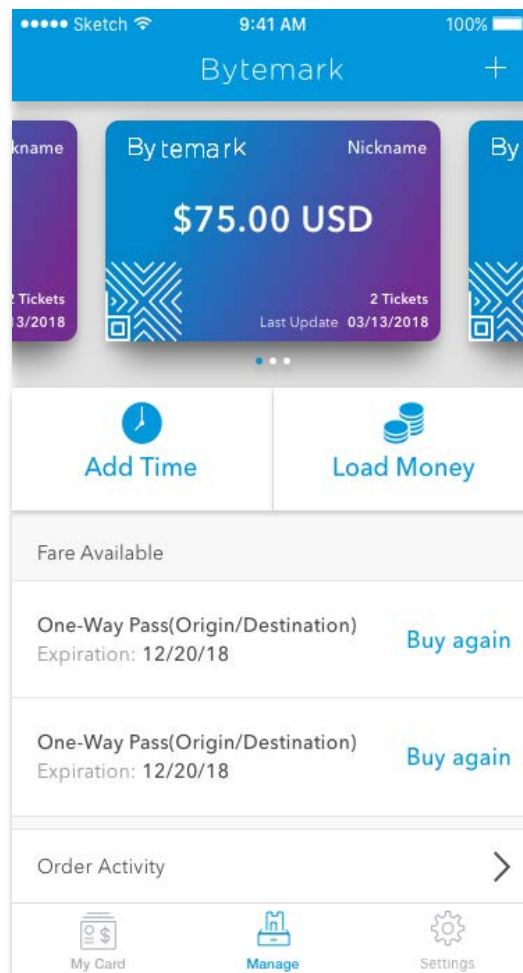
To produce the prototype, ByteToken partnered with Thales, leading international fare gate manufacturer, who upgraded their latest smart fare gate, the Dreamgate PG600, to support the AirGate Bluetooth functionality.

AirGate is easy to use. A passenger, simply downloads the ByteToken mobile app and uses this to purchase their travel rights, which are then stored on the mobile app. As they approach the fare gate to enter the transport network the app will, without user intervention, communicate with AirGate. Once the AirGate software has determined that the user has valid travel rights, a signal will be sent to the appropriate fare gate to open. This enables a hands-free approach to checking-in and out of the transport network, increasing user throughput as they no longer need to locate and present their ticket.

1.7.2.5.3 Customer Mobile Application (Account Management)

The Bytemark/INIT integrated app is a mobile application available for Android and iPhone that allows users with INIT e-fare customer accounts to use their mobile device as a virtual smart card that can be validated using an INIT PROXmobil scanner. Within the app, users can also manage their customer accounts by adding fare products or stored value to their mobile fare medium. In addition, customers can view and update the same account information through the customer website.

All data accessed by the Bytemark/INIT integrated mobile application is retrieved from and managed by INIT's platform.



Bytemark is uniquely positioned to develop and deploy a mobile ticketing application for ngORCA. Bytemark has worked directly with Sound Transit and King County Metro since 2016 as a mobile ticketing provider. Over 60,000 users have purchased passes on the *Transit Go Ticket* mobile application.

1.7.2.5.3.1 UX/UI Integration

Bytemark will work with INIT and INIT's UX/UI partner, Anthro-Tech, to develop a customized solution for ngORCA which meets the functional technical needs while also complimenting the common user interface elements that may arise. As Anthro-Tech will ensure a common user experience across all customer facing interfaces (Mobile App, Website, etc.), Bytemark will work through the functional requirements in an integral manner. Upon launch, customers will instantly recognize ORCA branding and feel comfortable knowing they are using the official ORCA app(s).

1.7.2.5.3.2 Native App Development

Bytemark is proud to offer native apps for iOS and Android operating systems. Native apps take advantage of operating system specific features and functions. Automated dev environments can accelerate the initial development of apps, but they use a lowest common denominator approach to app development, only supporting features that are on both iOS and Android and rarely support taking advantage of device capabilities that require native SDKs to access. Apps created in an automated dev environment will always be slower as they do not access libraries of the OS directly.

The security of native apps exceeds apps created by automated development environments. Non-native apps are more susceptible to "man in the middle" attacks and are easier to reverse engineer. When a major iOS or Android upgrade or security patch is released, automated dev environment tools need to be updated first before apps built with those tools can be updated or patched.

1.7.2.5.4 Mobile Application Functions

C. It is unclear what the proposed account management functions are, and how they would work for the customer. The proposed account management solution does not appear to meet the capabilities.

The proposed solution is to provide a unified account between the mobile app, web, and account-based cards. All accounts are managed on the unified MOBILEvario Back Office. In addition to using virtual fare media, all account management functions available via the consumer web site are available in the app.

The following is a list of a features functions end users will be able to perform through the integrated mobile application. These account management features are offered in the app via API's with the INIT MOBILEvario system.

Function	Notes
Account creation	Users will be able to create a customer account. After submitting all necessary information, Init's platform will send users an email which they must use to confirm their account before being able to use their customer account to log in to either the mobile application or the customer website.
User authentication	User who have created an account through the mobile application or through the customer website will be able to log into the mobile application using their email address and password.
Password reset	Users who are unable to remember their password will be able to request a reset password email.
Profile management	Once logged in, users will be able view and update their profile information including but not limited to their name and address.
Change password	Once logged in, users will be able to update their password by entering their current password then entering and confirming a new password.
Adding payment methods	Through the mobile application users will be able to add payment methods to their account. Payment methods added through the mobile application will be used to make purchases through both the mobile application and the customer website.
Viewing and managing payment methods	Through the mobile application users will be able to view any and all payment methods that have been added to their account through either the mobile application or the customer website.
Creating a virtual fare medium for use	Users who wish to use the mobile application as a fare medium will be able to create a virtual fare medium in the mobile application.
Adding value to a virtual fare medium	Users will be able to add value to their virtual fare media by selecting from predetermined amounts or by entering a custom amount.
Adding fare products to a virtual fare medium	Users will be able to add fare products to their virtual fare media. The fare products that list for purchase will be retrieved from Init's platform and will adhere to the parameters that have been configured.
Viewing contents of a virtual fare medium	Through the app users will be able to view the fare products and stored value that reside on their virtual fare media.
Viewing all other information relating to a virtual fare medium	Users will also be able to view the nickname, fare medium ID, and fare media category of their virtual fare media.
Linking an existing physical fare medium	Users will be able to link existing physical smart fare media to their account by entering a physical fare medium's ID into the mobile application.
Adding value to a virtual fare medium	The same process used to add value to virtual fare media will also be used to add value to linked fare media.



Adding fare products to a linked fare medium	The same process used to add fare products to virtual fare media will also be used to add fare products to linked fare media. The fare products that list for purchase will be retrieved from Init's platform and will adhere to the parameters that have been configured.
Viewing contents of a linked fare medium	Through the app users will be able to view the fare products and stored value that reside on any of their linked fare media.
Viewing all other information relating to a linked fare medium	Users will also be able to view the nickname, fare medium ID, and fare media category of their linked fare media.
Viewing purchase history.	Through the app users will be able to view the history of any purchases they have made through the mobile application or customer website.

1.7.2.5.4.1 Virtual Card Provisioning

For ngORCA, the INIT back office (MOBILEvario) will be responsible for the delivery of account-based fare media to NFC-capable devices. For Google Pay, a "Save to Google Pay" button will be implemented in the mobile app to initiate the provisioning of fare media to the Google Pay app. The app will receive all information from the INIT back office to allow the user to sign into their Google account, authorize the provisioning of the transit card to their device, and have the fare media appear in their Android Pay app.

We envision a similar approach, if applicable, for an Apple Pay integration. A physical card will not be a prerequisite to a user having a ngORCA closed-loop credential.

1.7.2.5.4.2 Virtual Card Management

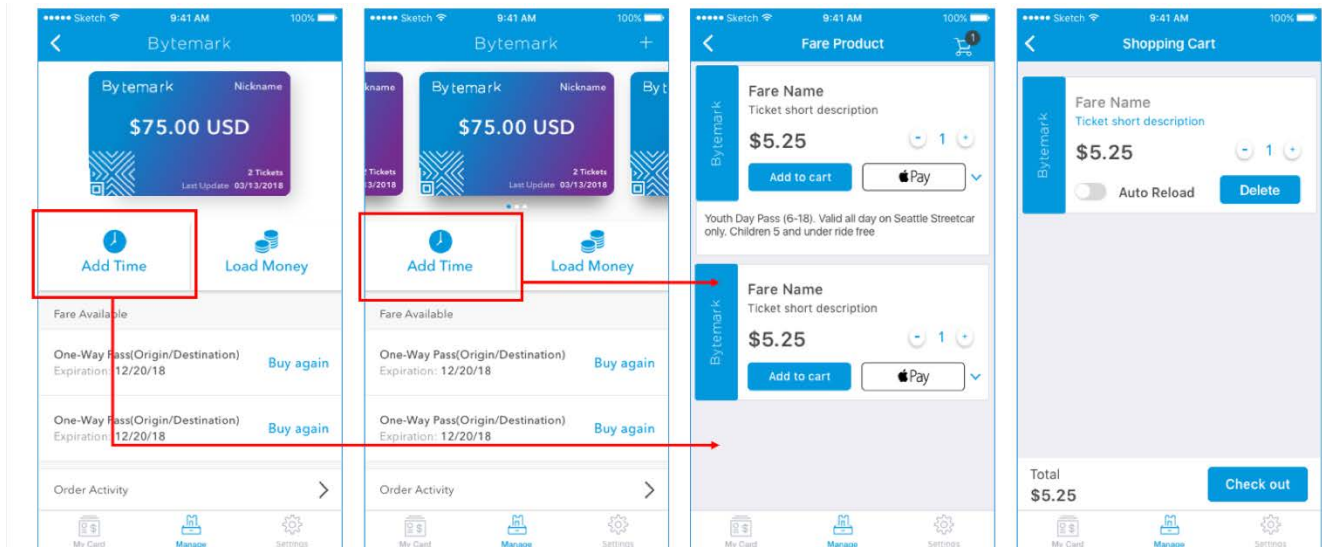
The mobile app will allow a customer to procure a virtual card through in-app provisioning without the need for a physical card. The customer mobile app will also enable conversion of a physical credential to virtual credential.

After purchase, a product or value can be added immediately to the virtual account. As soon as the user brings their phone close to an NFC reader, Apple Pay (future) or Android Pay will automatically open with the Virtual Fare Card. This process will not require any manual user interaction to switch to another app or designate activation.

The virtual card residing in Google Pay can be used by the rider while the phone is offline. The security behind the virtual card solution will be the same, regardless if the phone is offline or online. When the device regains connectivity, it will sync up with the back office and download any changes on the account so the app and virtual card displays the most up-to-date balance and information.

A connection will be required when purchasing fare products or adding value.

Add Products or Value to Physical or Virtual Fare Media



E. Proposed iOS solution references ""in the future"" and ""if applicable"" which is concerning since the SOW anticipates this functionality to be available at integration."

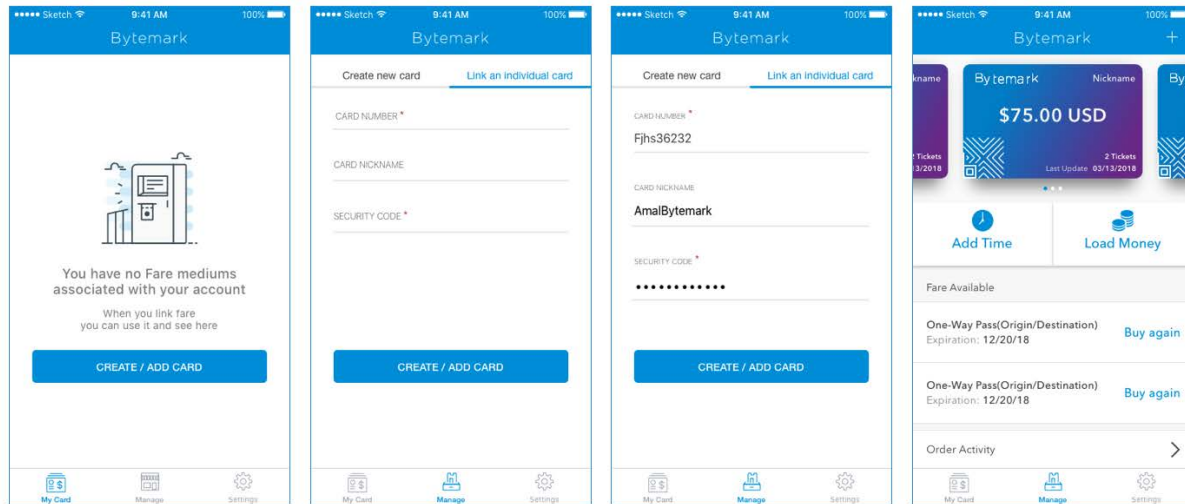
Currently provisioning of virtual fare cards is limited to Android phones running Kit Kat (4.4) or higher on devices that support NFC and Host Card Emulation (HCE). It is expected Apple will release similar functionality to support this use-case and feature on iOS, at that time Bytemark and INIT will implement this functionality.

With INIT provided Open Loop Mastercard/Visa branded account-based cards, physical media may be entered directly in Apple Pay, Android Pay, or Samsung Pay. This functionality is supported natively on each platform irrespective of any mobile ngORCA app. The ngORCA app can however manage that account and add funds or products.

1.7.2.5.4.3 Registering & Linking Physical Fare Media

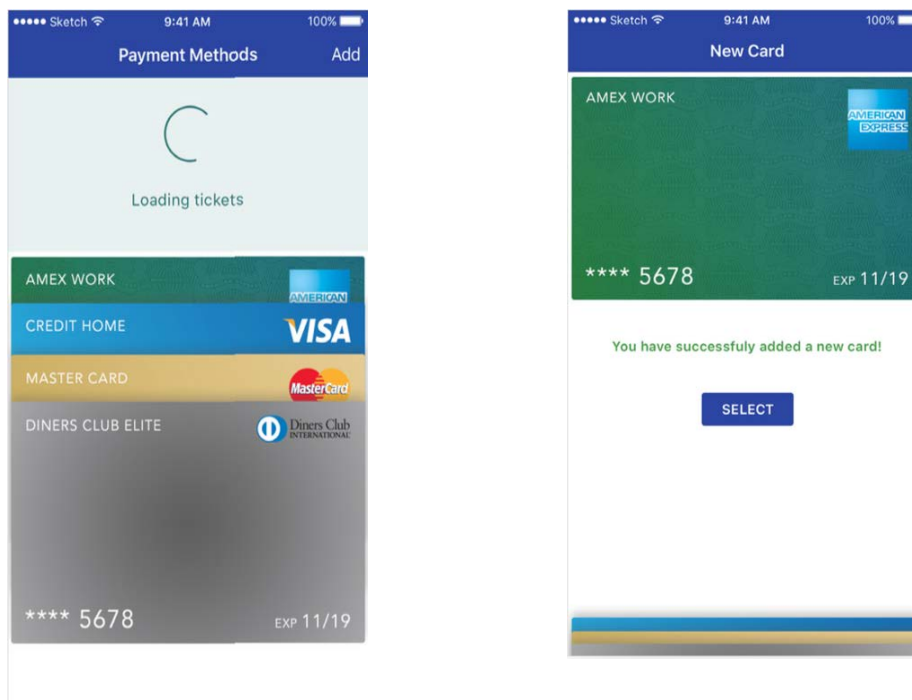
Users will be able to link physical fare media with their account and manage that physical fare media through the mobile app.

Create or Link Fare Media



1.7.2.5.4.4 Purchase Process

A user can complete their purchase using a personal credit/debit card or by linking to a mobile "wallet". Once a customer enters a credit card it can be saved with a nickname such as "My Debit Card" or "Work AMEX" for easy reference for the user. Users will be able to purchase multiple fare products from multiple agencies in a single transaction. The user will also be able to add value to their virtual or physical fare media.



1.7.2.5.4.5 Split Purchases

For customers that may need to spread their monthly pass over multiple payment methods, we include the option to split a payment. The app interface allows customers to easily allocate funds across multiple payment methods.

1.7.2.5.4.6 Autoload & Subscriptions

Users will be able to create product or value-based Autoload for repurchasing fares or adding value. Products such as monthly pass can be re-purchased automatically the day after expiration. The customer is sent a confirmation email before the purchase to give them adequate time to modify or cancel the Autoload. The INIT system allows the user to designate primary and secondary funding sources.

1.7.2.5.4.7 Notifications

Notifications may be displayed in multiple ways within the mobile app. The app's home screen may be configured to display important travel alerts and notifications.

Notifications can be used to raise consumers' awareness to any changes in the operator's regular operations and suggest alternative routes if necessary. Providing riders with notifications allows them to make the best decision and ease their experience when problems occur.

Restrictions to notifications can be tied to in-app, email, or customers may elect to opt-out completely. Also available are notifications for operator or relevant area news as well as special offers (if available).

1.7.2.5.4.8 More Information' Feature

More information allows the agency to include links to additional services and agency websites. Common links agencies include:

- Contact Us
- Customer Support information
- Call Center Hours
- Lost and Found Information
- Mobile App Tutorial
- FAQ's
- Terms of Service
- Rider Surveys
- Agency Website
- Route Maps, Schedules, Trip Planning Tools (can also be integrated more fully into the app)

- Agency Social Media

1.7.2.5.4.9 Settings and Profile Management

Within the settings screen users are given full access to their profile and are provided the information tools they need to successfully use the mobile ticketing application. Settings are customizable on an agency-by-agency basis.

Users have full access to their account and profile details. Users can update their profile directly in the mobile application. This includes: changing and resetting password, adding payment methods, modifying notification settings, purchase history, and account sign-out options.

Customers will have the ability to reset their password. On the log-in screen the customer may select the Forgot Password button. A reset password link will be emailed to the address on the account with instructions. Customers can also contact Customer Service representatives for assistance. User's will also be able to report their fare media lost or stolen. Reporting their fare media lost or stolen will then deactivate that fare media and allow the user to transfer the balance.

1.7.2.5.4.10 Order History

For customer's records, reference and quick reordering of past trips, a full history can be displayed in the mobile app. The customer can tap any entry to view the complete record for the transaction or to quickly repeat the purchase. A downloadable record will be made available to users.

1.7.2.5.4.11 Initiating Customer Service Requests

Multiple methods of contacting customer service will be provided within the mobile application. A direct phone number will be provided and a pre-defined customer request form which stipulates the reason for the inquiry, the inquiry itself, and the customer's contact information. Customer service inquiries can be stored in MOBILEvario and for the purposes of this bid populate the ORCA Salesforce CRM.

The INIT system allows users to initiate an opt-out refund. This process can be automated or at the discretion of the agency. Optionally, it can require administrative approval prior to refunds being issued.

1.7.2.5.4.12 Passenger Information Tools

The integration of real-time passenger information tools is vital to the customer experience and is a primary driver of mobile ticketing adoption. The application may take advantage of operator-provided web services including real time bus locations and schedule listings. Other information that can be incorporated includes: next departing bus information, delays, and alerts

that go beyond the typical trip planner to bring the most relevant information to a user as soon as they enter the application.

We can integrate schedule information for trip planning purposes in a format that customers have become accustomed to with Google Maps and similar planning tools. By overlaying route and station information on an interactive map, customers can see an overview of the transit system, or zoom in on specific routes and stations. By choosing origin and destination customers can even see the next departure times for that route. Geolocation is utilized if the user chooses to share their location. Location data is used to find the nearest station and to show real time bus locations if provided.

Additionally, the app can be configured to link to multiple third-party trip planning tools, which can be defined by ngORCA. We will work to make those tools configurable, so the user can choose a preferred planner.

1.7.2.5.4.13 Language Support

The mobile apps will undergo an internationalization process and be built to support multiple languages. We do ask clients to provide translations of their own content such as FAQs or supplemental information. The language in the application will match the language default on the mobile OS. If the language is not supported, the app will default to English.



Content supplied directly from the back office, such as fare products would need to be translated by the INIT system. Although, we do not recommend translating fare product titles.

1.7.2.5.5 Accessibility – ADA Compliance

We believe it is important to highlight Accessibility features as part of the Core System for our passenger facing solutions. Bytemark is committed to developing transportation software that can be utilized by all segments of the international communities we serve. There are 100s of millions of aging adults and persons living with disabilities globally, and transportation is essential to increased productivity and independent living.

Bytemark's Accessibility guidelines are based on Section 508 of the Rehabilitation Act of 1973 as amended 1998, and the World Wide Web Consortium's (W3C) Web Content Accessibility Guidelines version 2.0 guidelines at the AA level (WCAG 2.0 AA). Additionally, we conform to international guidelines, such as the European Accessibility Act and Accessibility for Ontarians with Disabilities Act; while also upholding US State and Local Electronic Information Technology ("EIT") mandates for vendors contracting in business with government funded agencies.

ADA Federal Compliance

- New Federal compliance requirements for mobile applications are in effect as of January 17, 2017
- Federal compliance requirements for mobile applications will be enforced starting January 18, 2018

From inclusive product design and usability features, to our developers utilizing the latest techniques for the Web and Mobile Accessible coding, with thorough review and Quality Assurance testing, Bytemark has defined a multi-step Accessibility implementation for all our products.

1.7.2.5.5.1 Highlights of Bytemark's Accessibility commitment

Operating system (OS) based implementation for screen reader usage for our iOS and Android applications.

- Color and Contrast
- Dynamic text and responsiveness
- Language and Content
- Navigation, Focus and Error Handling
 - Interface designed for consistency across screens
 - No Focus Traps
 - System auto-reads non-actionable yet important info: Expiration Date/Time
 - Labels have been substituted for text on screen

Web Accessibility formulary including specialized components for specialized products using AngularJS and WordPress.

- Animation functionality and compliance for our proprietary V3 tickets
- Development of a Corporate Accessibility policy integrated with the Corporate Product Roadmap
- Comprehensive Quality Assurance manual and automated testing
- Developing user testing and research sessions; as well as full participation with the Accessibility community and professional sectors worldwide.
- In an enduring commitment to corporate responsibility and sustainability, Bytemark is poised as the industry leader in these initiatives.

1.7.2.5.6 System Security

Bytemark was formed out of a former consulting company focused on mobile payments. From that experience, we have focused on three tenants:

- Secure customer data
- Secure payments
- Secure tickets

Bytemark's focus on secure ticketing is demonstrated by our patent portfolio which focuses on securing tickets via visual, electronic, and contactless methods. Our issued patent on visual ticketing encompasses 34 claims for validating a computerized ticket.

1.7.2.5.6.1 Restricted Access

Only a limited group of administrators with our company can access production environments on a need-to-know basis. All individuals with such access undergo background checks, must be thoroughly trusted, and must acknowledge in writing the importance of securing the system's data, why the data needs to be secured, and the ramifications of any leak, compromise, or breach.

1.7.2.5.6.2 Mobile Payment Security

No personal information—particularly payment card information—is stored within the mobile applications. Bytemark's proven methods of protecting Personally Identifiable Information (PII) ensure that the card payment information and other personally identifiable data is handled in a secure manner and may not be compromised during processing or during storage. All communication between the mobile applications and the back office are secured over SSL channels and is monitored at all times for security breaches or unusual activity.

1.7.2.5.6.3 In-app Error Tracking

Mobile application monitoring software, Crashlytics, is used to send alerts to our development teams about potential issues that arise in production. Crashlytics is used by numerous top mobile app development companies to monitor when crashes occur as well as what the root cause of the crash. Crashlytics provides deep and actionable insights, even the exact line of code the app crashed on. We use Crashlytics real-time analytics to quickly address issues as they arise.

Crash Reporting — It will record every single crash and its stack trace

Crash Logs — when a user causes a crash in-app, all the information about the crash is sent to Crashlytics's servers and provided to our developers

Crashes are monitored and their cause recorded. If a specific crash occurs for a large subset of users the issue can be addressed before it becomes something users have a large-scale complaint about.

Crashlytics is part of the mobile toolset we use to constantly monitor how users are using the app. Bytemark engages in an extensive QA and customer feedback process to monitor User Experience flow, customer retention, repeat usage, where customers stop using the app and whether the customer encounters a technical issue that is specific to them or part of what could be a subset of usage problems.

This data is quickly translated by our support team to our developers for analysis, repair and submission to the QA team. We aim to deliver constant improvements on our consumer facing apps and the backend infrastructure as the feedback is provided to us. Bytemark's platform is dynamic and constantly improving based on new customer requests, the latest security threats and improvements in technology solutions for the end user. System improvements are paid for by recurring maintenance & support costs, new feature requests and customizations will be considered a change order.

On the whole, Bytemark constantly strives to improve our platform in meaningful ways that ensure our customers have software that does encounter issues of obsolescence. With software delivered to consumer devices that are changing every few months with new mobile operating systems and new functionality, it is insufficient to deliver a piece of software and assume its function for the next 5-10 years with only minimal or minor updates – as has been common in ticket vending.

Bytemark's platform is dynamic and always improving as part of our administrative responsibilities because we feel mobile-driven ticketing solutions will drive the transportation industry over the next decade. This can only happen with a platform that is routinely reviewed and updated to meet evolving consumer market expectations of what an app does on their mobile device.

1.7.2.5.7 Hosting & Uptime

The Bytemark Platform is a PCI/ISO-compliant, three tiered, load balanced, and auto-scaling system. These segments are divided by functionality, with redundancy across data centers. Amazon Web Services (AWS) provides us with an unprecedented toolbox to provide scalability not only locally but globally through Amazon's network operations centers spread around the world. Scaling procedures and network architecture is reviewed bi-monthly to identify performance bottlenecks and to ensure that load is being distributed effectively.

A key component of the AWS platforms that we utilize are load balancers. Load balancers can automatically distribute incoming traffic across our multiple API pool of server instances. They scale automatically to provide the amount of load balancing capacity needed in response to the actual incoming app traffic. Load balancers also provide fault tolerance by automatically rerouting traffic away from unhealthy server instances in the event of software instability or issues on the underlying hardware. The load balancers will restore traffic back to those instances

automatically when they come back online. Multiple API instances can be allocated based on the amount of incoming traffic as well.

1.7.2.5.8 Bytemark's Project Management Methodology

The Project Manager, and lead technical resource have the overall authority and responsibility for managing and executing this project per the appropriate parameters. Project Management Body of Knowledge (PMBOK) methodology is heavily employed throughout the project lifecycle. This includes full implementation of the practices of: risk management, project scheduling, issue identification, status reporting, change control, resource planning, communication planning and other industry practices to successfully bring projects to completion.

The project team will consist of our personnel from the development group, PMO and testing group. The project manager will work with all resources to perform project planning. All project and subsidiary management plans will be reviewed and approved by the project sponsor. The project sponsor will also make all funding decisions. Any delegation of approval authority to the project manager and systems architect should be done in writing and be signed by both the project sponsor and project manager. Tool usage will range from traditional task tracking software, Gantt chart creation, Risk Register creation and monitoring software.

A dedicated Project Manager will be responsible for providing timely project updates, reports and serve as central contact person for all project related activity. All project related documentation will be readily available to the Agency and their partners. Documents will be stored in a secure but shared workspace and will have appropriate versioning. Documents will be produced in widely accessible format.

1.7.2.5.8.1 Project Kickoff

Prior to an onsite kickoff meeting, Bytemark in partnership with INIT and Anthro-Tech will conduct onboarding evaluation to aid in jumpstarting the project. The onboarding evaluation is meant to gather basic information that will be discussed during the onsite assessment. Key members of the Bytemark staff shall kickoff the project by meeting with key stakeholders. The focus of this meeting will be to review the scope of the project as well as to provide Bytemark with the agency's long-term vision and goals. We will review the onboarding evaluation and complete any outstanding items with the appropriate agency departments. A successful project kickoff is one of the most vital stages of the project and it is important all stakeholders are available and participate.

Bytemark in partnership with INIT will also go through a fit-gap analysis to determine where business requirements align with existing platform functionality. The RFP scope and the compliance matrix shall serve as the basis of the fit-gap review to determine what components need to be customized to meet the ORCA's needs. Efforts will be made to make alternative

recommendations where necessary to meet business requirements utilizing existing functionality or features.

1.7.2.5.8.2 System Implementation Plan

An implementation plan will be put in place during the Startup Phase of the project, here is a high-level sample implementation plan:

Upon Notice to Proceed, Bytemark will begin preparations for the project including planning out staffing levels and incorporating ORCA's anticipated development into our project development cycle.

- 1) Before kickoff, Bytemark will conduct an onboarding evaluation to aid in jumpstarting the project
- 2) Bytemark will conduct a project Kick Off Meeting with the project's key stakeholders. At this time, we will review the scope of the Project as well as review long-term goals for the agency. Together we shall review the onboarding document and complete any outstanding items
- 3) Bytemark will work with Anthro-Tech and stakeholders in the design process
- 4) Bytemark will quickly take the information provided during the design phase to create prototypes and testable features
- 5) Bytemark will develop an iOS and Android apps with appropriate branding, interface requirements, and functionality
- 6) Bytemark will conduct system integration with INIT's MOBILEvario system
- 7) Bytemark, in partnership with INIT will train agency staff on all facets of the system required to fully test mobile functionality
- 8) Bytemark will coordinate with ORCA staff to carry out internal testing of the apps
- 9) Bytemark will work with ORCA staff to coordinate public testing of the apps (if required)
- 10) Bytemark will launch the apps to the public

Throughout the project, Bytemark will gather feedback from all stakeholders to refine processes and our systems.

1.7.2.5.8.3 Approach to Completing Work on Time

The project Coordinator is responsible for resource management across the portfolio of projects. The Project Coordinator and Project Manager will work together to ensure that the appropriate resources will be assigned accordingly to the project, in order to meet agreed deadlines and deliverables.

The common adage that everything takes longer than you think rings especially true for large projects with multiple vendors. There will always be a wide range of goals and to pursue all of them will take considerable resources by us *and* inside the agency – project management, QA,

stakeholders input and so on. It is easy to underestimate internal resources that are required that may pull staff away from their already burdened schedules.

With the release of a mobile ticketing app, the agency will have a very powerful and flexible tool for engaging with passengers that internal staff will be excited to tap into. There will be internal pressure to advance individual agendas to add features and modifications to the base contract. One lesson is to focus on the original scope to ensure that it is completed on time and within budget. Shifting priorities and seemingly "minor" change orders can stack up and disrupt the original schedule.

1.7.2.5.8.4 Change Management Plan

The following steps comprise Bytemark, Inc.'s change control process for all projects and will be utilized on the project:

- Identify the need for a change (Any Stakeholder)
- Requestor will submit a formal change request in writing to the project manager
- Log change in the change request register (Project Manager)
- The project manager will maintain a log of all change requests for the duration of the project
- Conduct an evaluation of the change (Project Manager, Project Team, Requestor)
- The project manager will conduct an evaluation of the impact of the change to cost, risk, schedule, and scope
- Submit change request to Project Sponsor
- If a change is approved by the Project Sponsor, the project manager will update and re-baseline project documentation as necessary as well as ensure any changes are communicated to the team and stakeholders

Bytemark shall perform, but is not limited to, the following technical services under change orders or task requests:

- Provide requested training of agency personnel
- We will submit a customized training plan for any specific training a task order will indicate a necessity for
- Extensions to functionality
- Assistance in the selection of alternative components and or software to those originally provided for the Platform
- Modifications to the look and feel of the customer application

1.7.2.5.8.5 Risk Management

An emphasis on Risk and Roadblock Management provides assurance that our organization can create and implement an effective plan to prevent losses or reduce the impact if a loss occurs. A good risk and roadblock management plan includes strategies and techniques for recognizing and correcting these threats, solutions for both preventing and solving bad situations, and indicates financial opportunities. Issues and potential roadblock are evaluated, mitigated against and plans communicated.

The Project Manager will determine what action should be taken for each risk as it is brought to attention through weekly team meetings and database reports. The Agency Project Manager shall determine whether to keep the risk, delegate responsibility, or transfer the risk responsibility up the project organization chain. The Project Manager, if necessary, may transfer a risk(s) to external organization if that organization is best suited to handle the risk.

1.7.2.5.8.6 Quality Management / Test Plan

All members of our project team will play a role in quality management that is executed in conjunction with Test Planning. It is imperative that the team ensures that work is completed at an adequate level of quality from individual work packages to the final project deliverable. The following are the quality roles and responsibilities for the project:

- The Project Manager is responsible for approving all quality standards for the project. The Project Manager will review all project tasks and deliverables to ensure compliance with established and approved quality standards. The Project Sponsor will sign off on the final acceptance of the project deliverable.
- The Project Manager will work with the project's quality specialists to establish acceptable quality standards. The Project Manager is also responsible for communicating and tracking all quality standards to the project team and stakeholders.
- The Quality Specialists are responsible for working with the Project Manager to develop and implement the Test Plan, which informs Quality Assurance. Quality Specialists will recommend tools and methodologies for tracking quality and standards to establish acceptable quality levels. The Quality Specialists will create and maintain reports from QA testing that will be delivered to project stakeholders.
- All stakeholders will be responsible for assisting the Project Manager and Quality Specialists in the establishment of acceptable quality standards. They will also work to ensure that all quality standards are met and communicate any concerns regarding quality to the Project Manager.

Quality control for the project will utilize tools and methodologies for ensuring that all project deliverables comply with approved quality standards. The Quality Specialists will assist the

Project Manager in verifying that all quality standards are met for each deliverable. If any changes are proposed and approved by the Project Sponsor, the Project Manager is responsible for communicating the changes to the project team and updating all project plans and documentation.

1.7.2.5.8.7 Resources & Ability to Deliver for Next Generation ORCA

Bytemark has continued its commitment to servicing clients in the Puget Sound Region and the West Coast more broadly by establishing a satellite office in Seattle. We have recently hired a full-time project manager who is based in Seattle (Adela Sebestova, resume attached). Max Letaconnoux, who managed the *Transit Go Ticket* mobile application deployment and is the lead Project Manager for all Bytemark INIT integrations will continue to manage the project for Next Generation ORCA. Adela will provide onsite support as needed.

1.7.2.5.9 Additional Project References

Additional references for our *Transit Go Ticket* mobile app deployment and ability to deliver solutions for ORCA:

Matt Hansen: Manager, Customer Communications & Services. King County Metro Transit Division

Email: Matt.Hansen@kingcounty.gov

Phone: (206) 477-6055 <tel:2064775789>

Kathy Kelly: Business & Finance Officer. King County Metro Transit Division

Email: Kathy.Kelly@kingcounty.gov

Phone: (206) 477-6047

Robert Nedrow: Transit Chief - Customer Services & Fare Media Sales. King County Metro Transit Division

Email: Robert.Nedrow@kingcounty.gov

Phone: (206) 477-1079

Paul Lavallee: Director IBI Group. Lead consultant for TGT Project.

Email: Paul.Lavallee@ibigroup.com

Phone: (206) 612-0084

1.7.2.5.10 Aela Sebestova, Seattle Based Project Manager

Customer-focused, **PMP certified** project manager with experience in multinational, fast-paced environment. Recognized for exceptional problem-solving abilities while meeting restrictive deadlines and budget. Keen on managing multiple projects and leading teams.

Experience

Bytemark, Seattle, USA, Project Manager, *(June 2018- present)*

- Leading the development and delivery of mobile ticketing and payment solutions for transit agencies
- Owning relationship with clients, creating project schedules and tracking milestones

AMAZON, Seattle, USA, Project/Program Manager, *(March- June 2018)*

- Managed audit lifecycle process and owned relationship with compliance operations team in India and China, including internal software update and implementation communication
- Supported the automation and improvement of all SR processes
- Managed multiple email and trouble ticket queue to ensure appropriate and timely resolution

Kuoni, Prague, Czech Rep. & Geneva, Switzerland, Project Manager/Team Leader, *(Dec 2014- Aug 2017)*

- Owned complex simultaneous projects from initial planning to completion
- Created project plans, budget and timelines and constantly monitored progress
- Proactively managed changes in project scope, identified potential risks and created contingency plans
- Contributed to internal software & process optimization
- Provided strategic advice to associations on budget optimization and increase in attendance
- Managed supplier negotiation, contracting and budget, resulting in higher profit than expected

RMP Travel, New York, USA, Project Manager, *(May 2013-Aug 2014)*

- In charge of project planning from initial proposal to its execution and evaluation

Education

MA & MSc., International Events Management, EM Normandie, France and Brighton University, UK (dual degree) *(2011- 2013)*

International Business- Master 1, EM Normandie, France *(2010- 2011)*

BA, Studies of European Economy, Administration and Culture, Masaryk University, Brno, Czech Republic *(2007- 2010)*

1.7.2.6 Commitment to Innovation – Bytemark & Siemens Mobility

Siemens AG is a global powerhouse focusing on the areas of electrification, automation and digitalization. Siemens has approximately 348,000 employees in more than 200 countries. In fiscal 2016, it generated revenues of \$88.1 billion. Siemens' Mobility Division develops new intelligent mobility solutions to increase the availability of infrastructure, optimize throughput and improve passenger experience.

As of November 2017, Bytemark is a Siemens Mobility company. The Siemens Mobility team provides us with a tremendous group of industry experts in the fields of fare collection, real time information systems, and transit management software

Bytemark has won the following industry awards:

- Ticketing Technology of the Year in 2017 from Transport Ticketing Global
- Best Ticketing Solution of 2016 by Juniper Research
- 2014 Best of Texas award in the Best Mobile/Wireless Project Category for its mobile ticketing deployment for Austin's Capital Metropolitan Transportation Authority.

1.7.2.6.1 Technical Flexibility

Bytemark's mobility solutions strive to be a technology & system agnostic solution that can integrate into existing fare collection and transit ITS systems. One of our greatest strengths is our experience integrating with a diverse set of vendors including Trapeze, Genfare, Xerox-Conduent, INIT, Kapsch, and Thales. No other mobile ticketing company has integrated with as many third-party fare collection vendors as Bytemark.

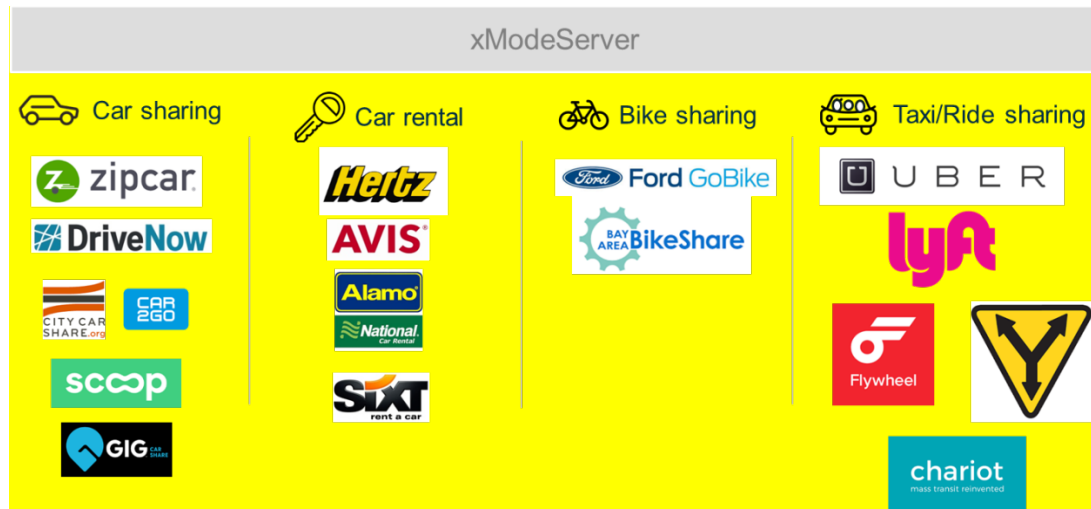
1.7.2.6.2 Siemens Mobility Deployments in North America: Bytemark and HaCon

HaCon creates and develops high-quality software solutions for traffic, transport and logistics. HaCon has established itself as a leading player for planning, scheduling and information solution and was acquired by Siemens in 2017. They have over 30 years of experience and a dedicated team of 270+ IT and transport planning specialists. In 2015, the Massachusetts Institute of Technology (MIT) honored HaCon as one of the "50 Smartest Companies" worldwide. HaCon's timetable information system helps millions of passengers stay up to date on their connections. Combining different means of public and private transport, HaCon's journey planners handle over 100 million requests per day, providing multimodal transport information in more than 25 countries.

Bytemark and HaCon have deployed combined mobile ticketing and trip planning solutions to clients since 2016. Together we have provided our clients best of breed mobility solutions that offer seamless intermodal trip planning and ticketing. Bytemark and HaCon have developed or are developing joint solutions for Austin's Capital Metro (CMTA), New York City Ferry, Des Moines Area Regional Transit (DART), and San Mateo County Transit District (SamTrans).

1.7.2.6.3 Integrations with Third Party Mobility Provider

The Siemens Mobility Platform has already successfully integrated with a large number of shared mobility providers, like Uber and Car2Go, see picture below:



Services can be integrated for:

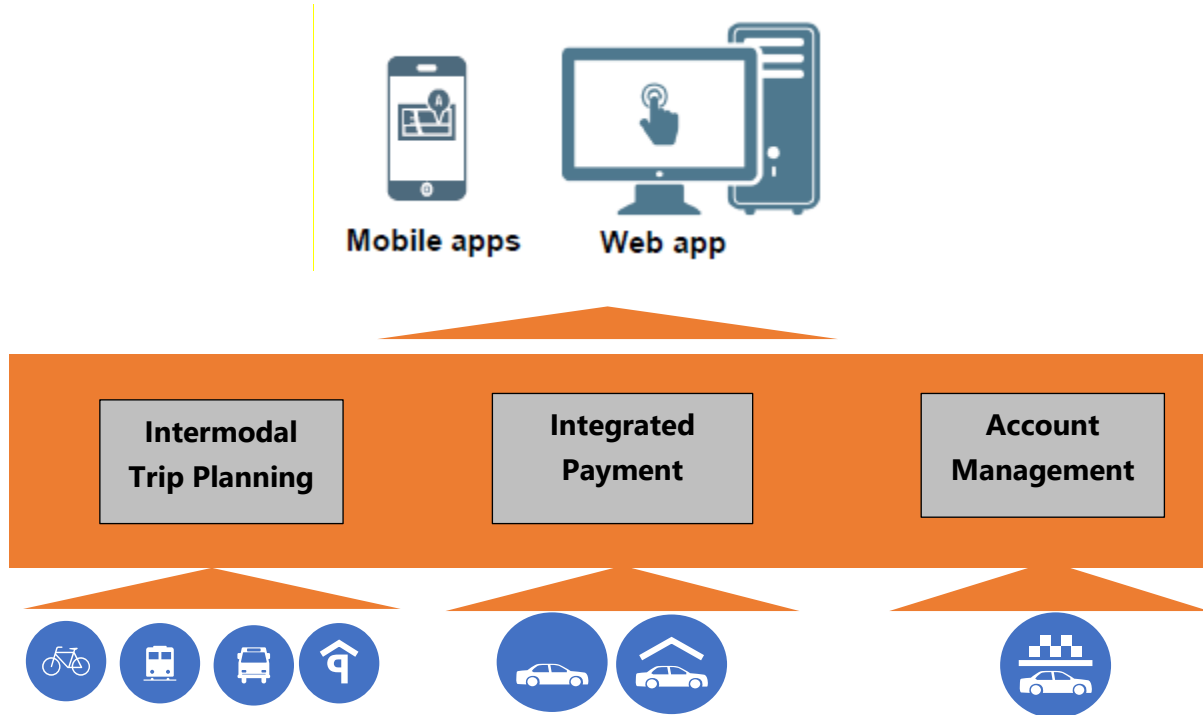
- Fare information and ticketing
- Estimated fare calculations
- Advanced mobility services like routing for walking, bike or car and car/bike sharing, carpooling or Park & Ride

1.7.2.6.4 Mobility as a Service Architecture

The Mobility Platform consists of three primary systems.

- Intermodal Trip Planning
- Integrated Payments
- Account Management

Bytemark and HaCon are delivering a transit centric MaaS Platform. The difficulty in any such MaaS offering is not so much in the technical implementation but in brokering agreements between disparate vendors. Mobility providers will all offer payment and account management systems with preference for their own services. Intermodal trip planning is the most technically challenging but easiest to get buy-in from multiple providers.

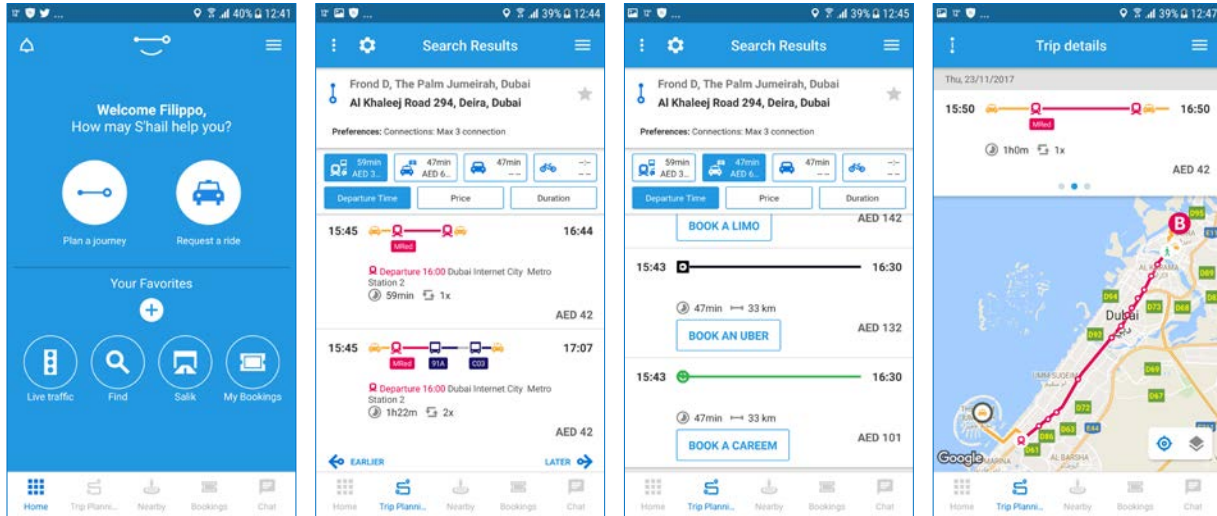


In both Dubai and Switzerland Siemens Mobility has deployed advanced integrated mobility solutions. Please see case-studies on the following pages for more information.

1.7.2.6.4.1 Siemens Mobility – Global Innovation: S'hail – Dubai

The S'hail app for Dubai offers multiple modes of travel including bus, train, taxi, Uber, Careem. Routing options are provided for a large network a transit types:

- 79 metros
- 3000 buses
- 9500 taxis
- 11 trams
- 5 ferries
- 1 mono rail



We provided the intermodal trip planner, payment and tariff engine for Dubai's transit network, Roads and Transport Authority.

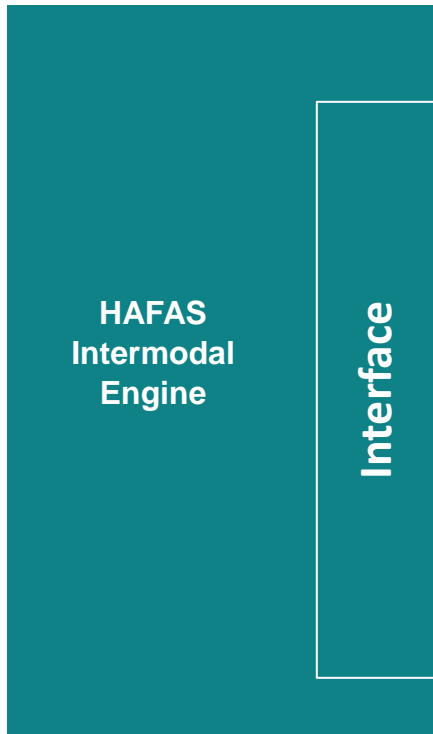
The S'hail app features:

- Unbiased, objective routing options
- Intermodal routing: taxis are used in combination with metro and buses to cover first / last mile
- Direct interface with travelers
- Direct access to a large base of mobility data

1.7.2.6.4.2 Siemens Mobility – Global Innovation: Swiss SBB

We have delivered an integrated mobility application for Swiss Federal Railways (SBB). The mobile application provides a front-end that allows users to trip-plan and book services from transit, bikeshare, and car share services.

Integrated, Intermodal App



- **Transit (Train, bus, metro, trams) Plan Data, accessibility, occupancy, booking confirmation**
- **P+Rail: location, prices, booking confirmation**

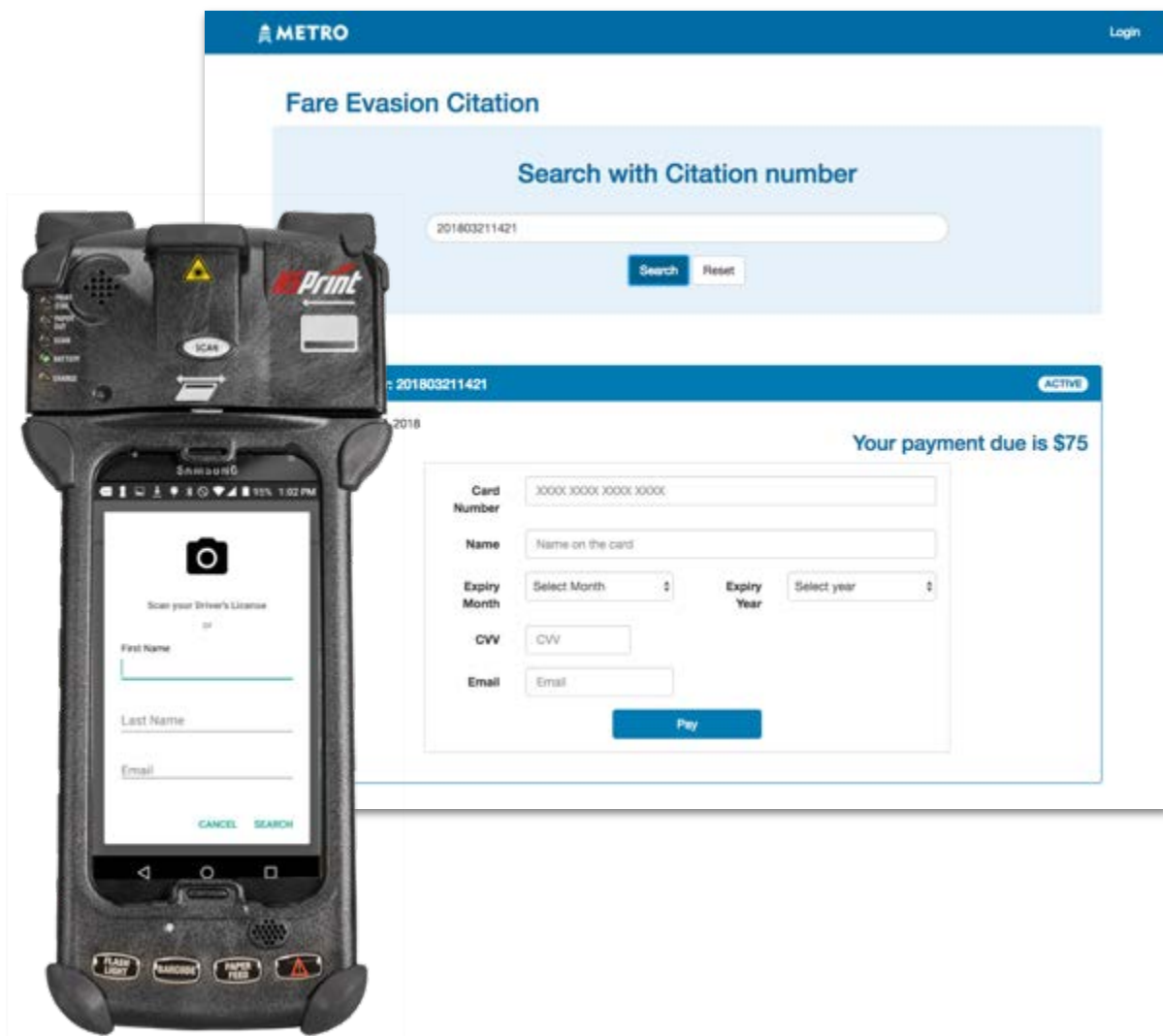


- **Car-sharing Availability, locations, car type, price, booking**
- **Taxi Availability, price**
- **Bike-sharing Location, availability, price**

1.7.2.6.5 Bytemark – New Products

1.7.2.6.5.1 Fare Evasion Enhancements

- Web portal for paying citations
- Validate City of Austin, Travis County, and Austin Community College tickets, and UT Austin IDs
- New handheld hardware with printer
- Magstripe, barcode, and Smartcard validation
- Back office enhancements



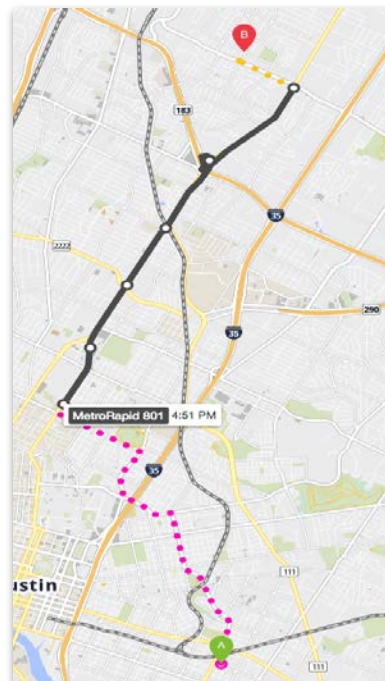
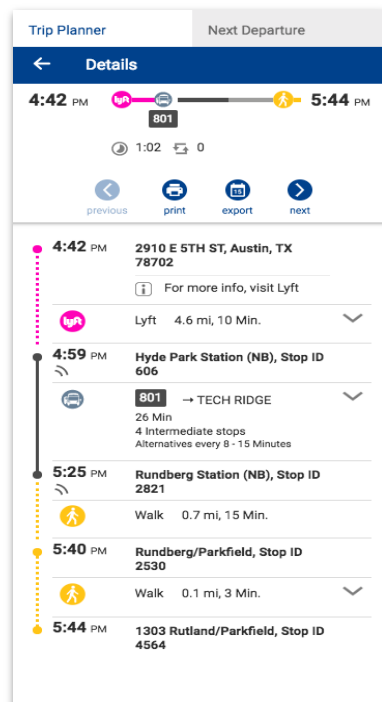
1.7.2.6.5.2 Merchant Mobile: Point-of-Sale

- Bytemark Merchant Mobile POS features:
 - Order entry
 - Payment acceptance
- Advanced Mobile Payment 8200
 - Chip cards
 - Apple Pay and Google Pay
 - Contactless
 - Magstripe cards
 - PA-DSS certified
 - EMV certified
 - Built-in Printer
 - Smartcard reader
 - Barcode scanning



1.7.2.6.5.3 Multi-Modal Trip Planner Enhancements

- **Multi-Modal** trip planner that combines ridehail, bus, train, and bikeshares
- **Uber** and **Lyft** trip planning
- **Tier 2 Hacon Support** located in Austin



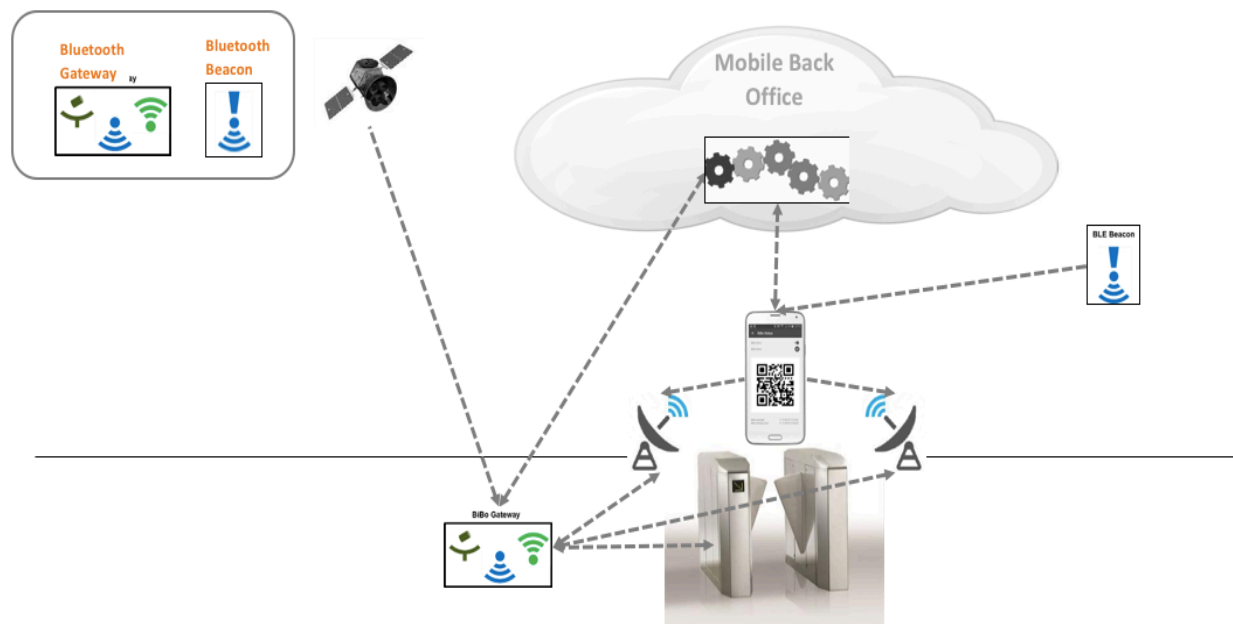
1.7.2.6.5.4 Airgate: Hands-Free Faregate

Bytemark's Walk-In Walk-Out solution is "hands-free" validation through existing ticket barriers rather than doing away with the barrier altogether. The "AirGate" solution radically simplifies the validation process by automation. Bluetooth beacons wake up the customer device and app as they enter the station, presenting valid tickets to the screen for activation or the purchase screen in the case they don't have any valid tickets.

Bluetooth antennae in front of and above the ticket barrier then monitor the approaching customer and data exchanges determine whether the customer has a valid ticket or not. A 3D imaging camera also determines whether they are the only person in the gate lane or not.

Once the customer has arrived in front of the flap barrier the "AirGate" system sends a command signal to the gate for it to remain in the open position for the customer or to close in the case of an invalid customer. This can also operate in reverse where the barrier is normally closed if desired.

- Walk-in Walk-out validation system
- Keep your phone in your pocket
- Uses Bluetooth for location tracking
- Bolt-on system
- Winner of "Ticketing Technology of the Year" at the 2018 Transport Ticketing Global Awards in London



1.7.3 E-BROS Proven Mobile AFC Apps

E-BROS is an international software company operating in many European countries with offices in Tampere, Finland and Kaunas, Lithuania. The key areas of their expertise are e-commerce solutions, software and mobile development. Their global success is based on building great customer relationships. They keep a close contact with our clients to identify their business needs and deliver high-quality solutions that help them operate more efficiently.

INIT successfully used E-BROS in the Turku, Finland account based fare collection project to provide the Inspection App. E-BROS is providing the Inspection, Validation and Retail App for the project in Honolulu and the Inspection App for the INIT fare collection project in Grand Rapids.

INIT will approach the design of the apps in partnership with Anthro-Tech and the efforts undertaken to define and establish a common UI/UX interface for ngORCA.

Both agency apps (Inspection and Validation) will use the Android OS. The apps will be managed using a Mobile Device Management system (see chapter 1.8.1.9.12).

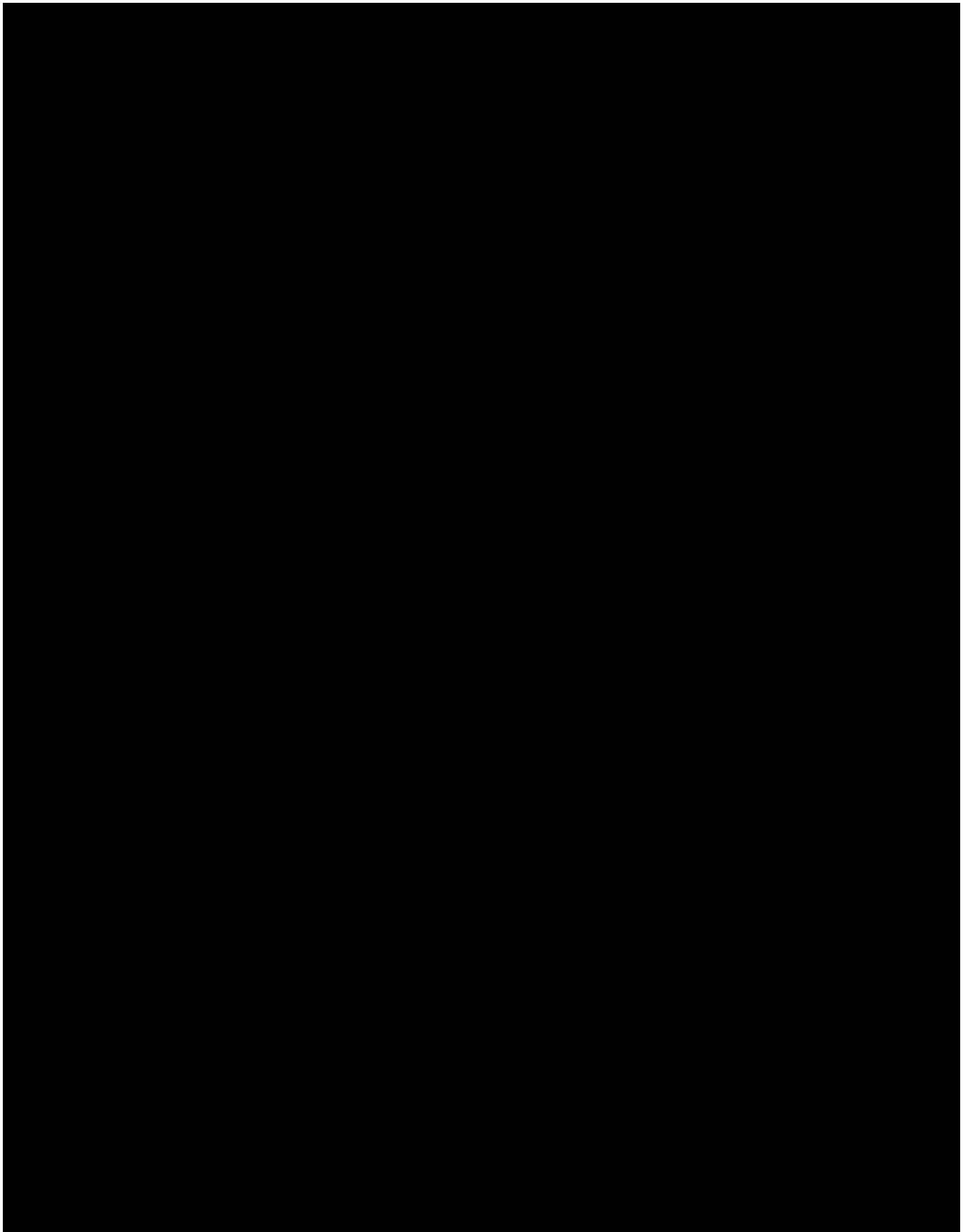
The NFC capability of the Android phones that are used for the inspection and validation app will be used to read the closed loop cards and the Google virtual cards. If there is a use to read 2d barcodes (fallback scenario for Apple virtual cards), E-BROS uses commercial 2d barcode libraries to enable a state of the art experience when scanning barcodes.

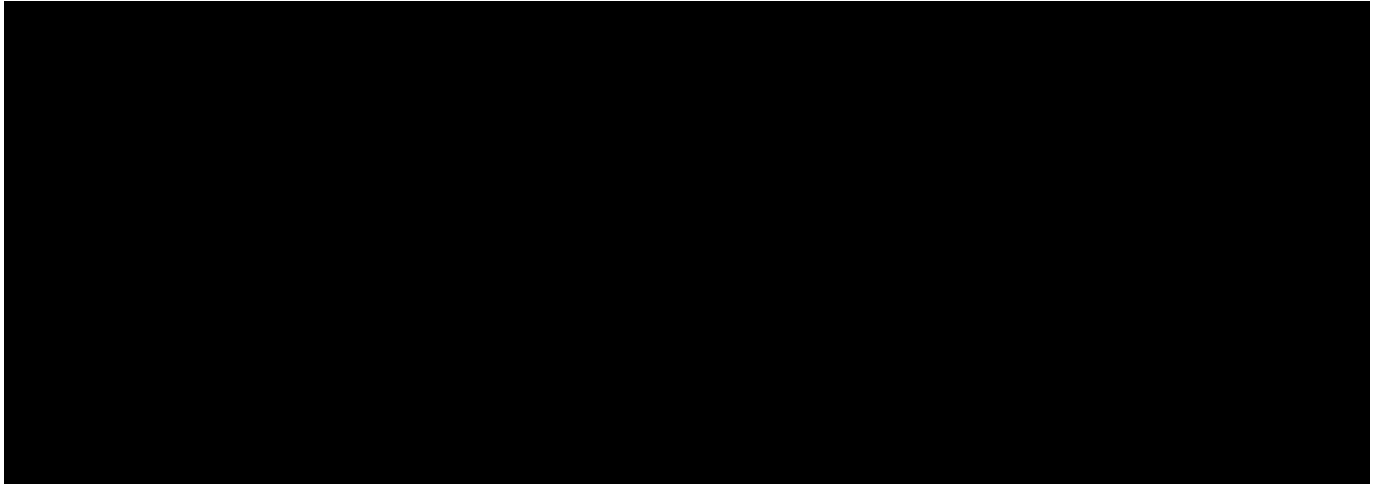
Quick summary which company is responsible for which app / website:

- Public responsive website: Marathon
- Public native Customer Management App for iOS and Android: Bytemark
- Non-public managed Inspection and Validation App: E-BROS

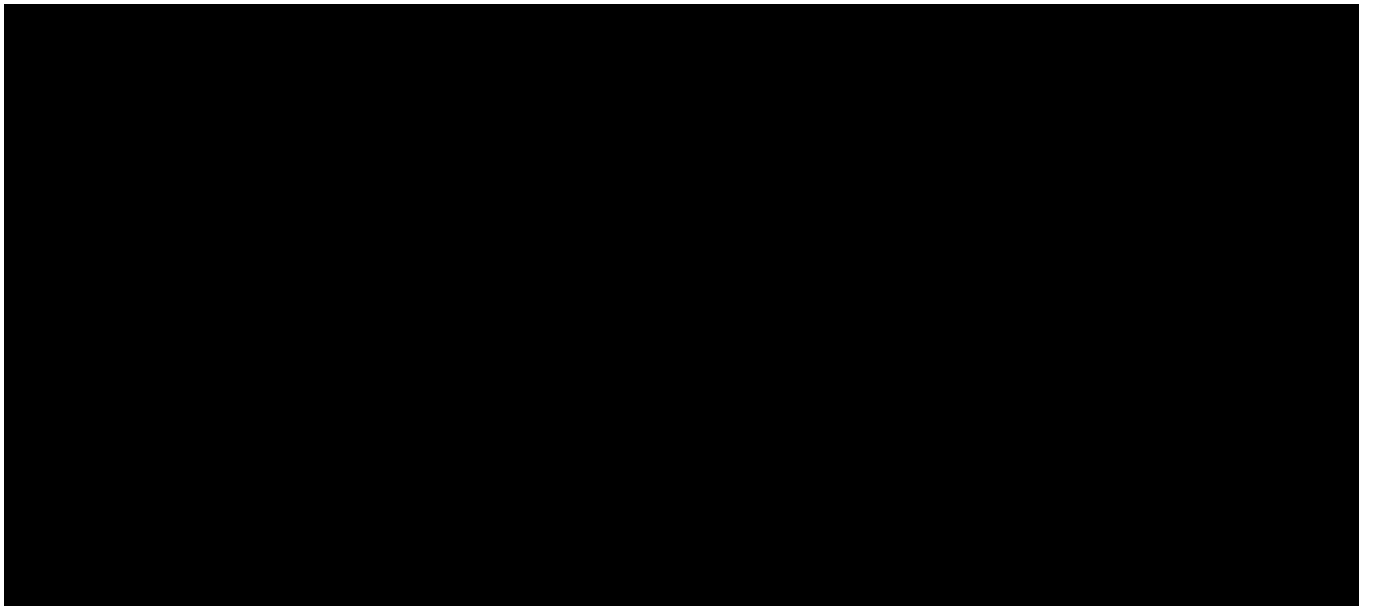
1.7.4 INIT's Agency Focused, Cost-Effective Licensing Agreements

1.8 INIT's Back office: Open-Architecture and Interchangeable Modular Applications

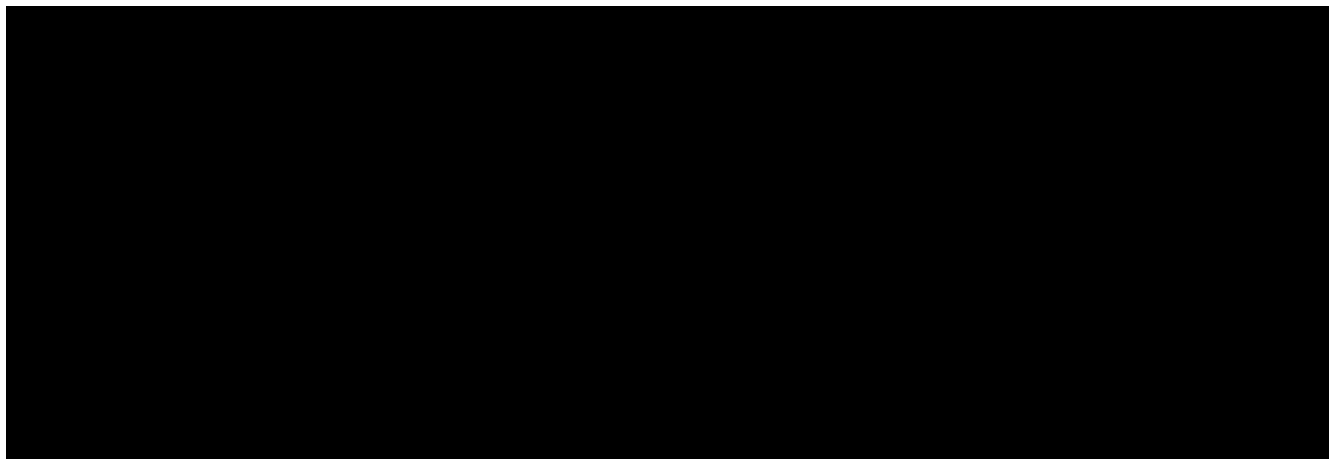


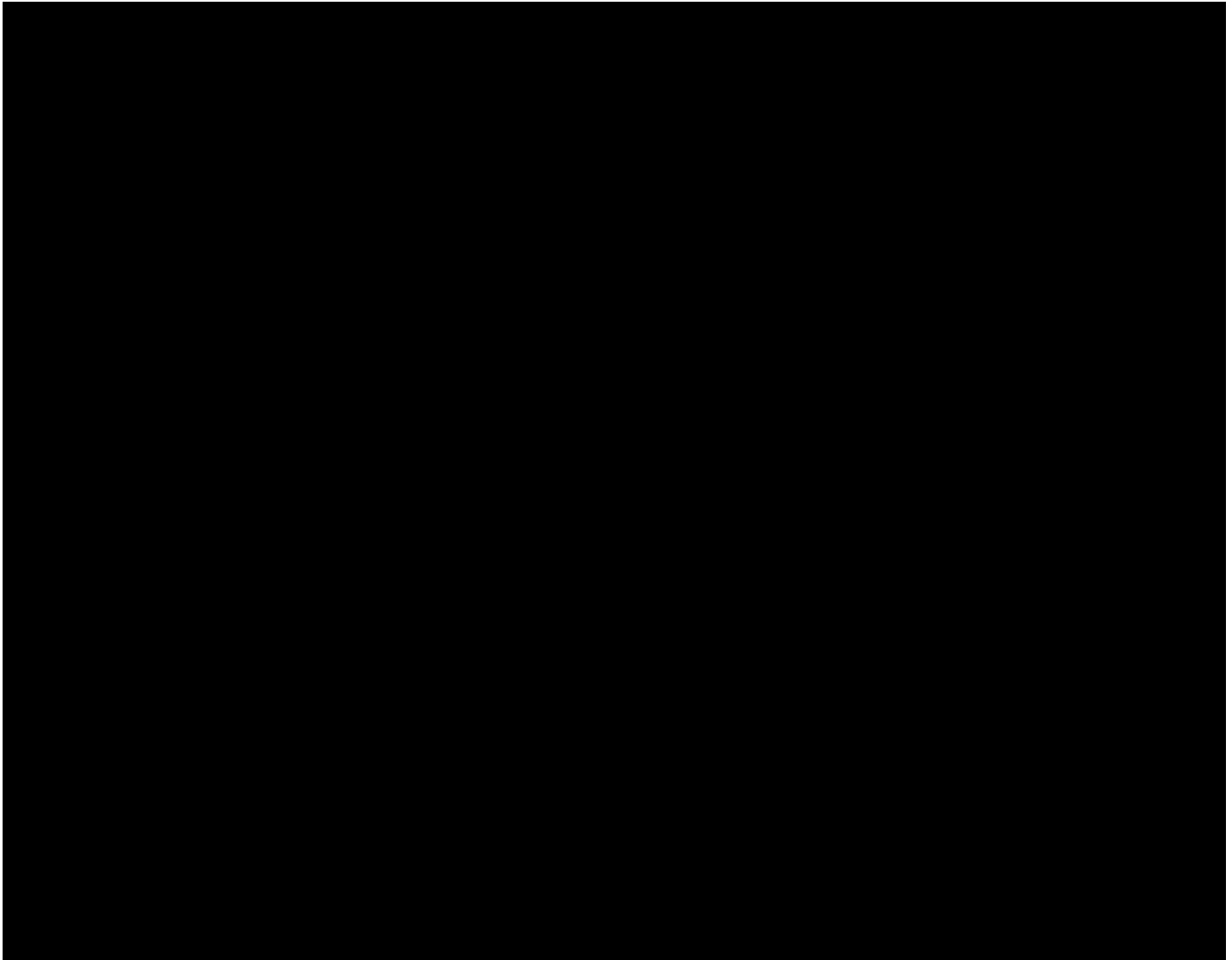


1.8.1 System Hardware

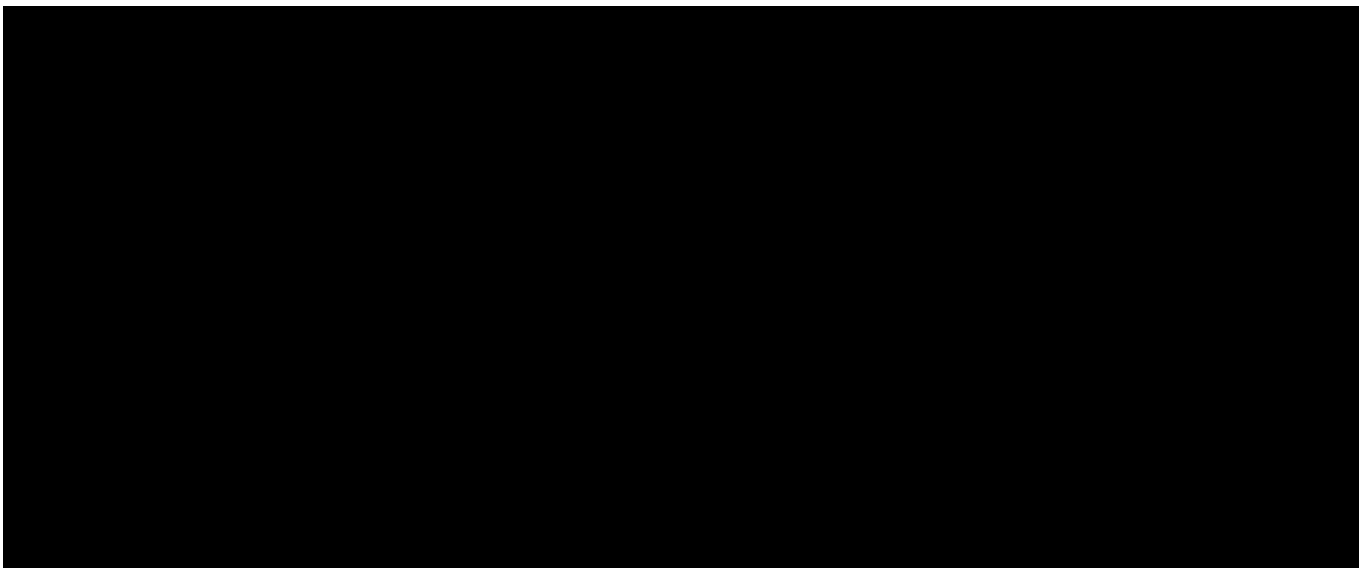


1.8.1.1 Concept of Operations

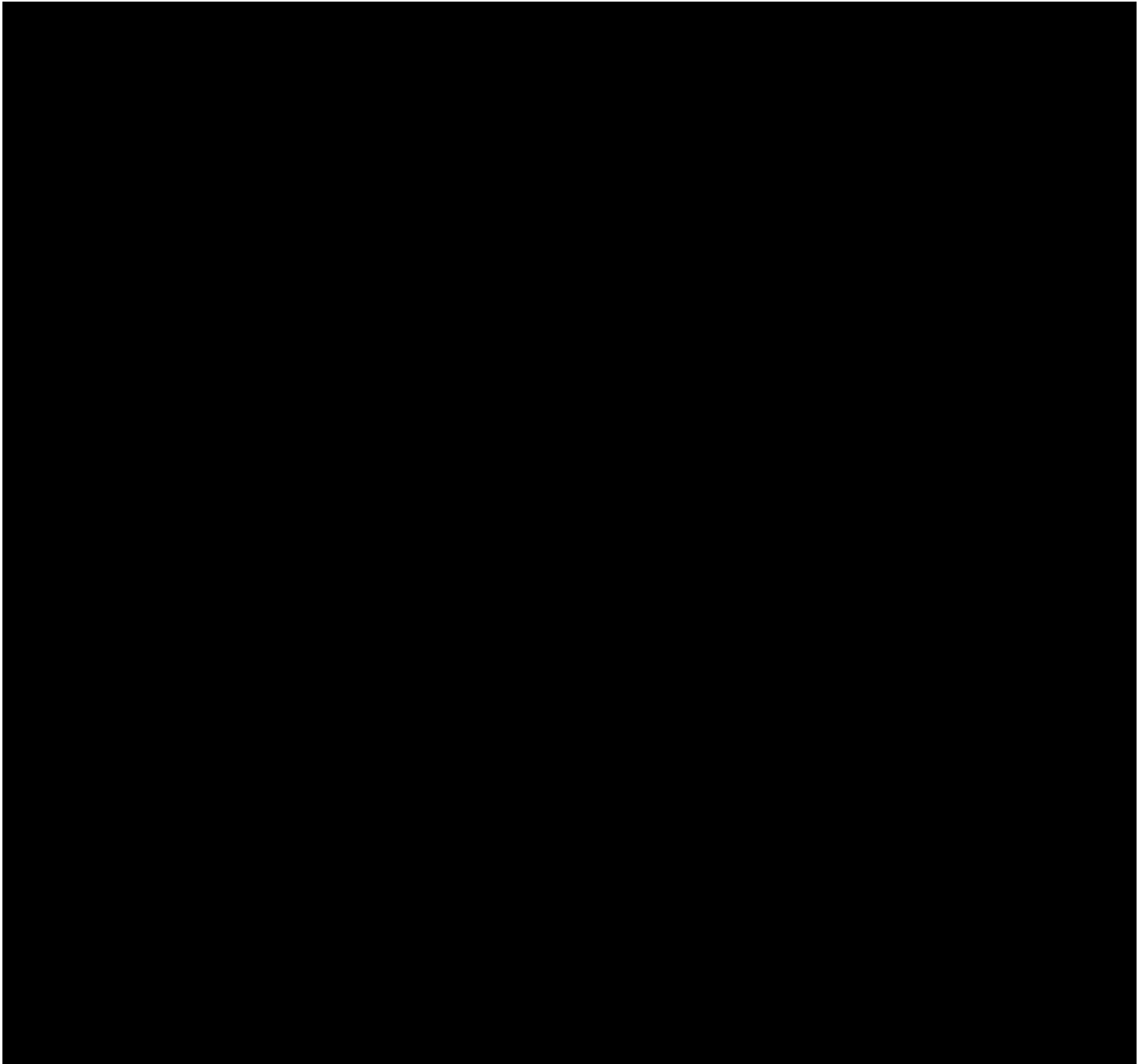




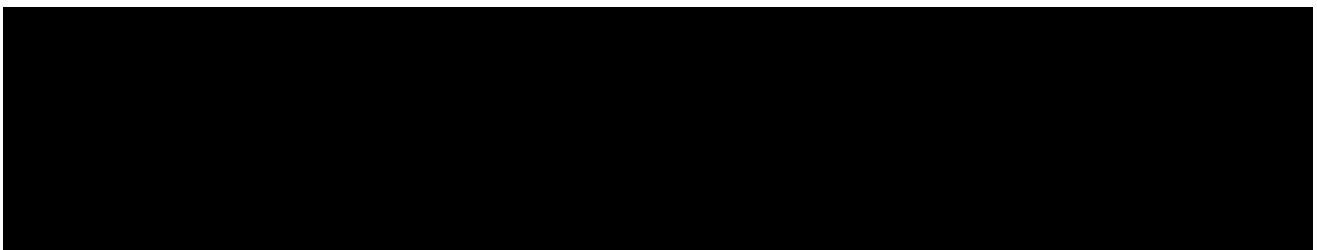
1.8.1.2 Servers



1.8.1.3 Storage



1.8.1.4 Network





1.8.1.5 Firewall



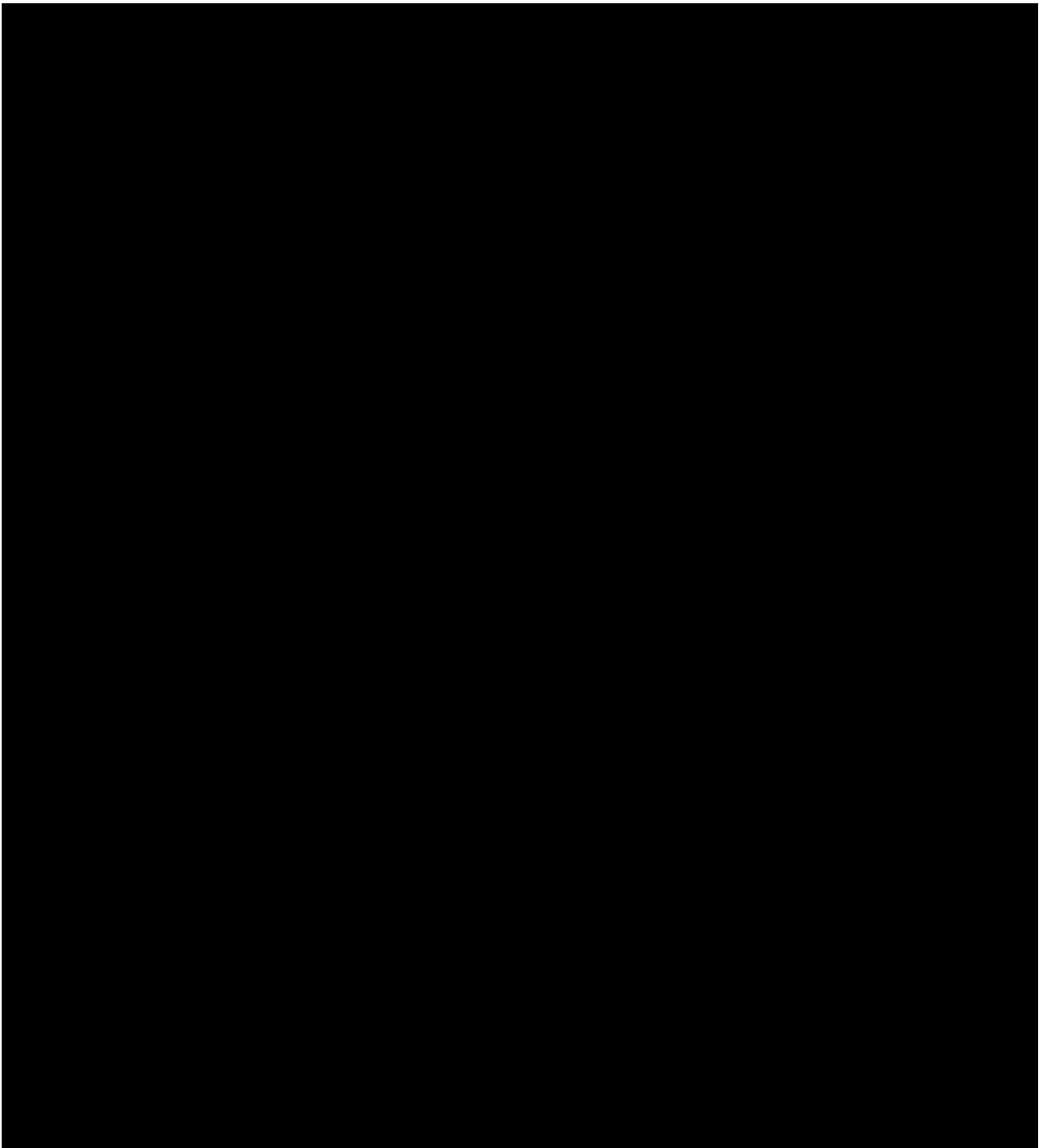
1.8.1.6 Load Balancer

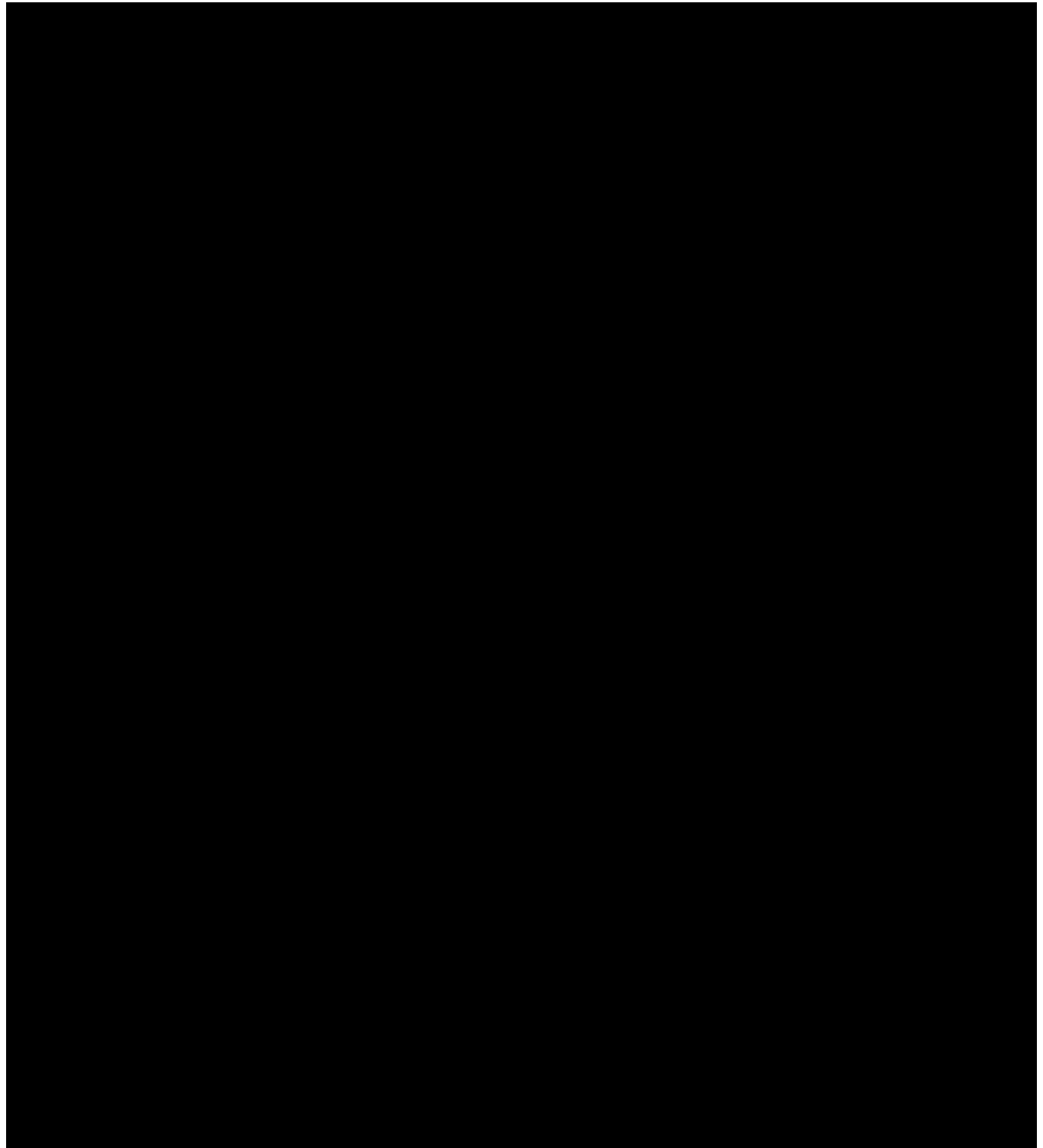


1.8.1.7 Operating System

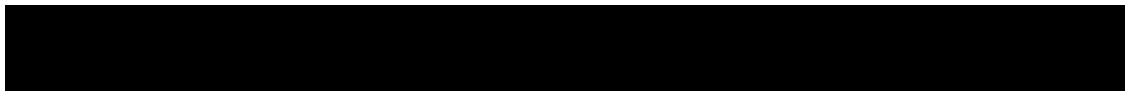


1.8.1.8 Databases





1.8.1.9 Back Office Applications Software

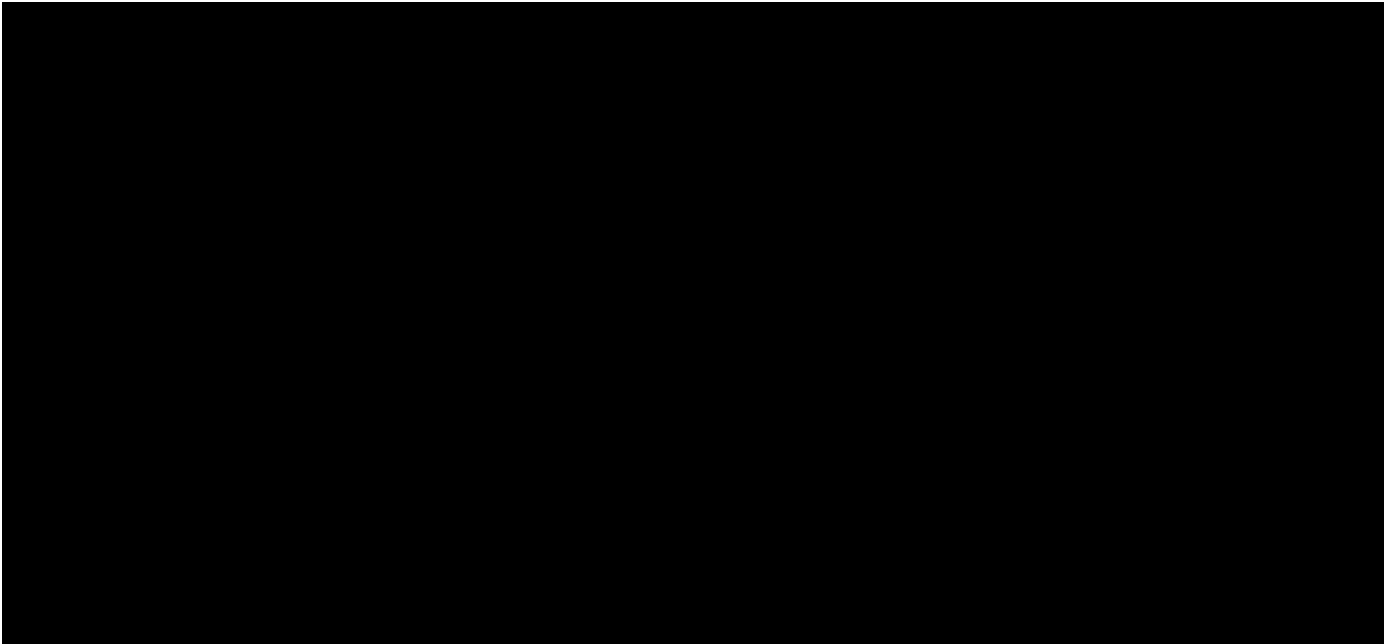


1.8.1.9.1 Microsoft Windows Server

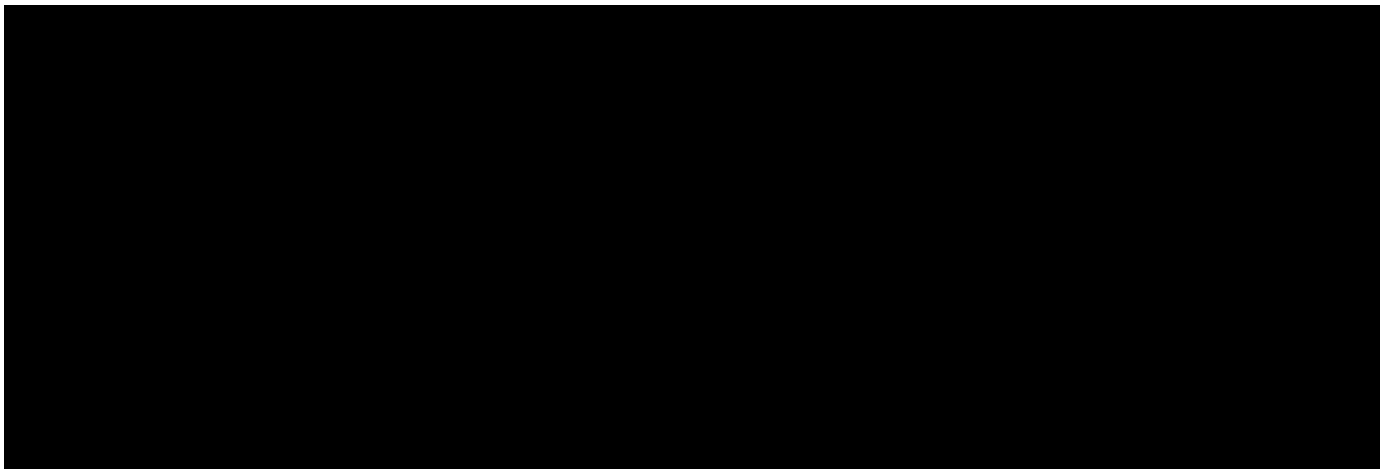
1.8.1.9.2 Windows Internet Information Services (IIS)

1.8.1.9.3 VMware vSphere Enterprise Plus 6.5

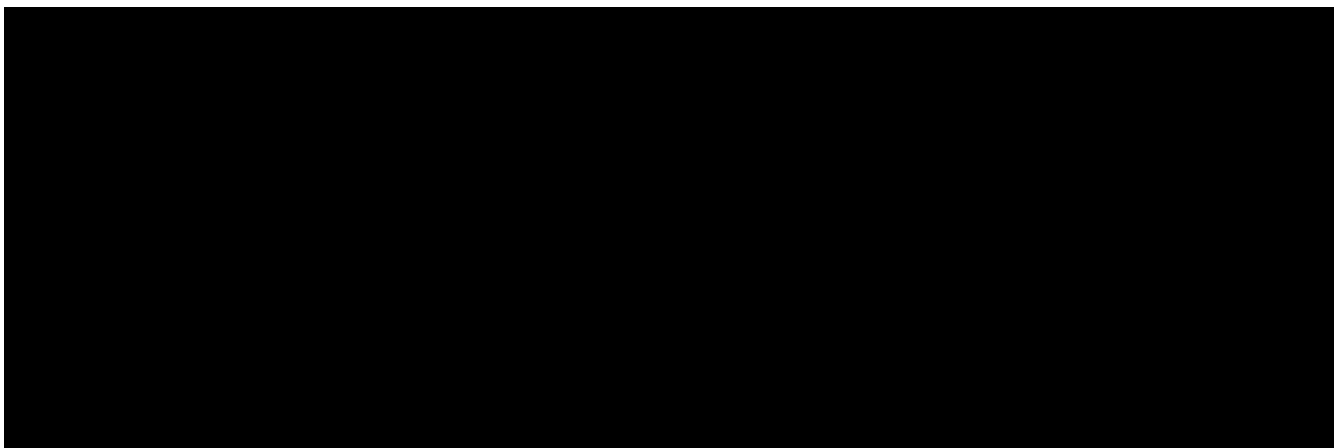
1.8.1.9.4 Bomgar Remote Access

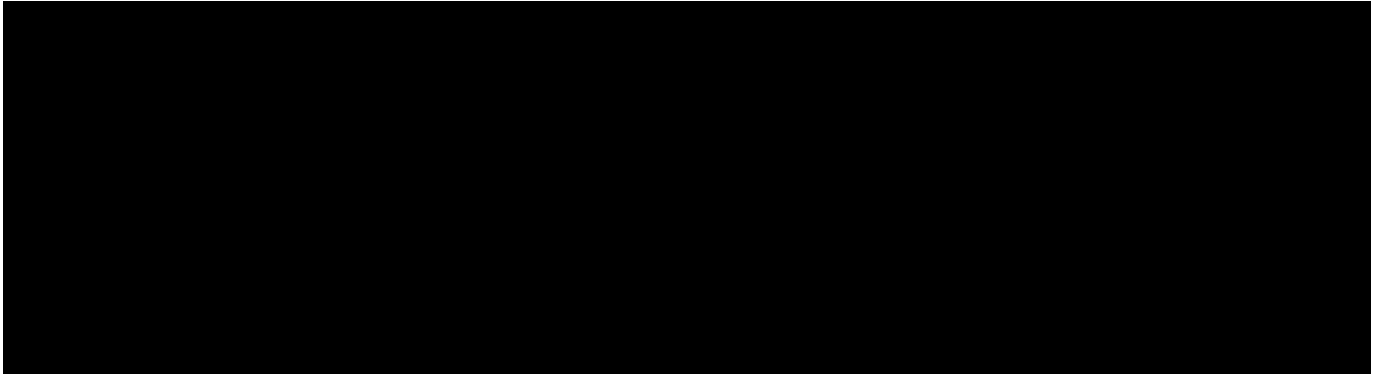


1.8.1.9.5 ESET Endpoint Protection

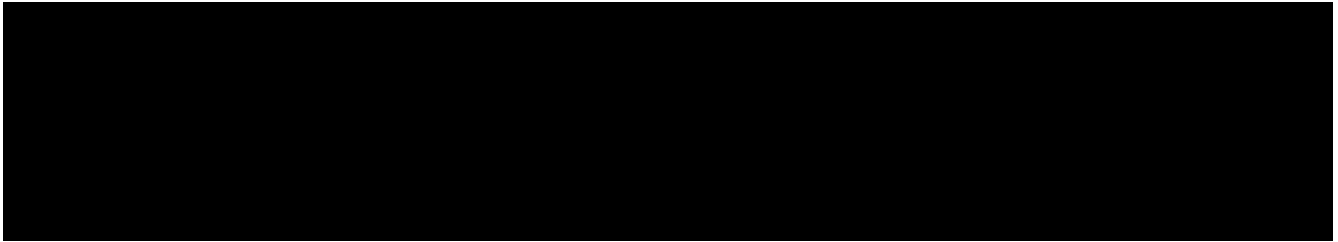


1.8.1.9.6 CimTrak File Integrity Management

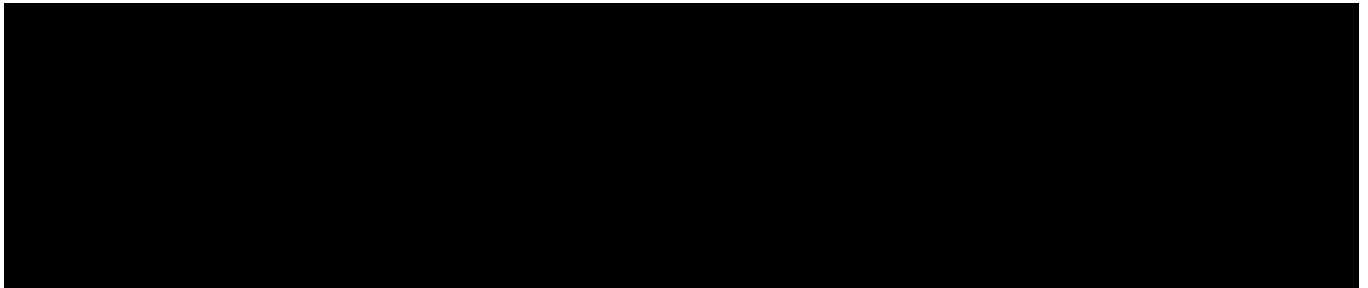




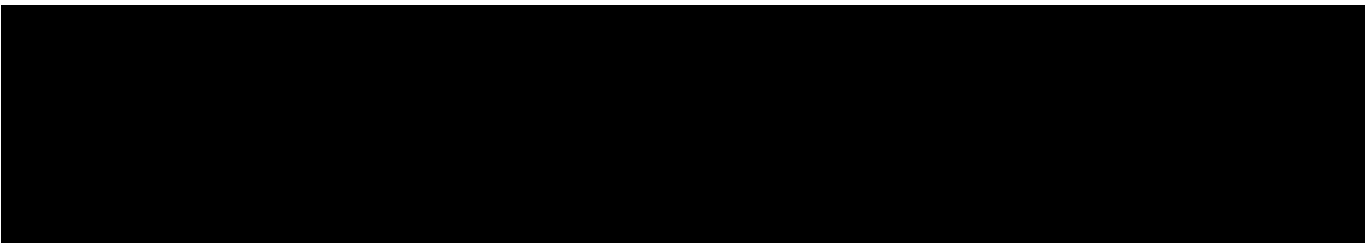
1.8.1.9.7 Ivanti Patch for Windows (Shavlik)



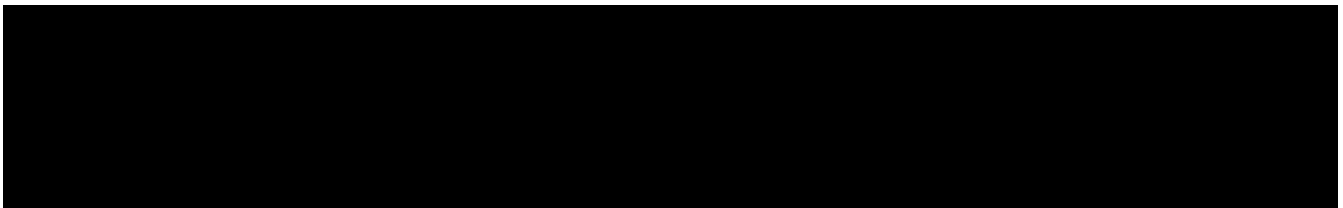
1.8.1.9.8 Solarwinds Network Performance Manager (NPM)



1.8.1.9.9 Solarwinds Server Application Manager (SAM)



1.8.1.9.10 Solarwinds Database Performance Analyzer (DPA)





1.8.1.9.11 Umbraco Content Management System



1.8.1.9.12 IBM Maas360 Mobile Device Management

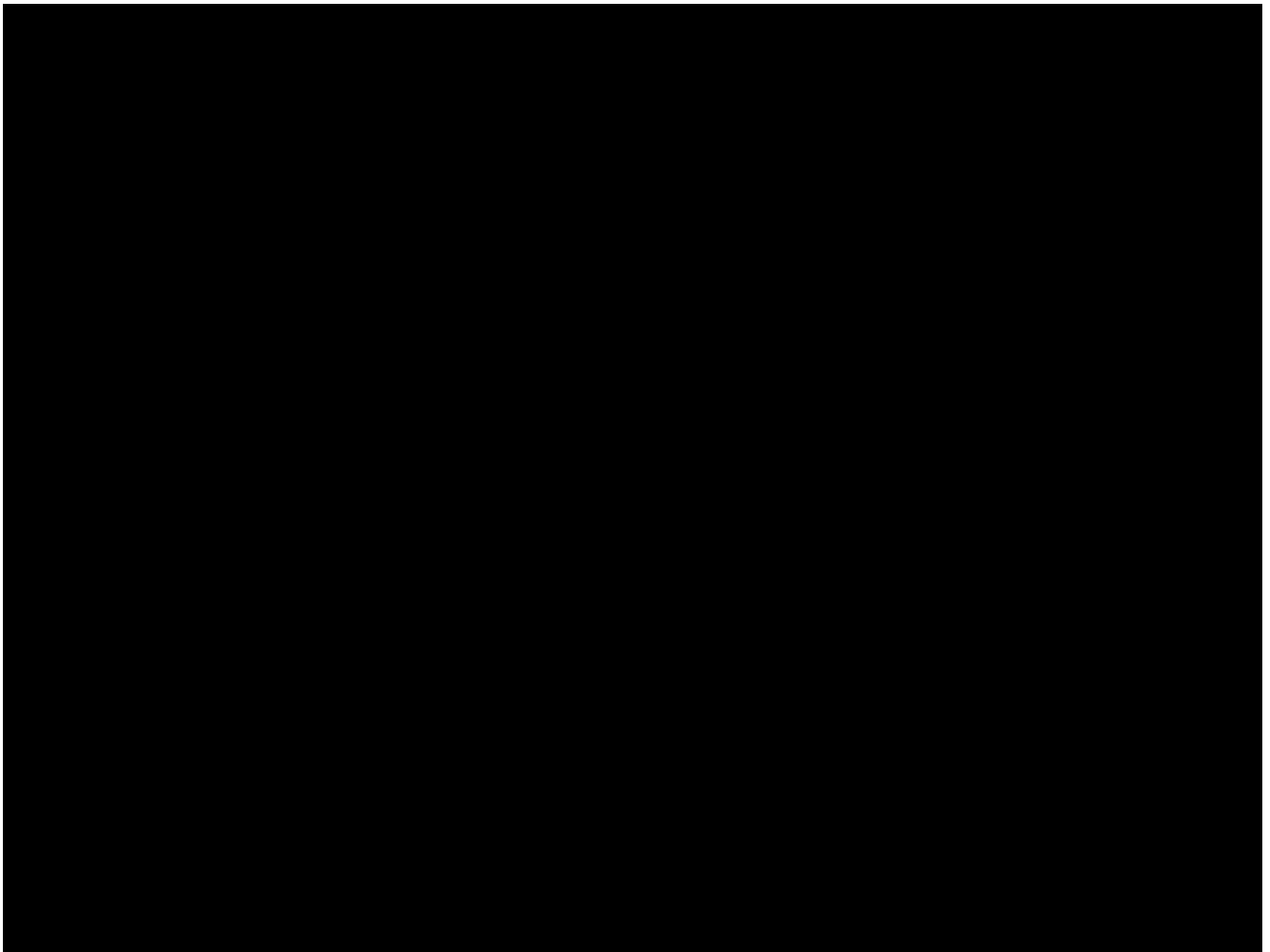


1.8.1.9.13 WS_FTP SFTP Server

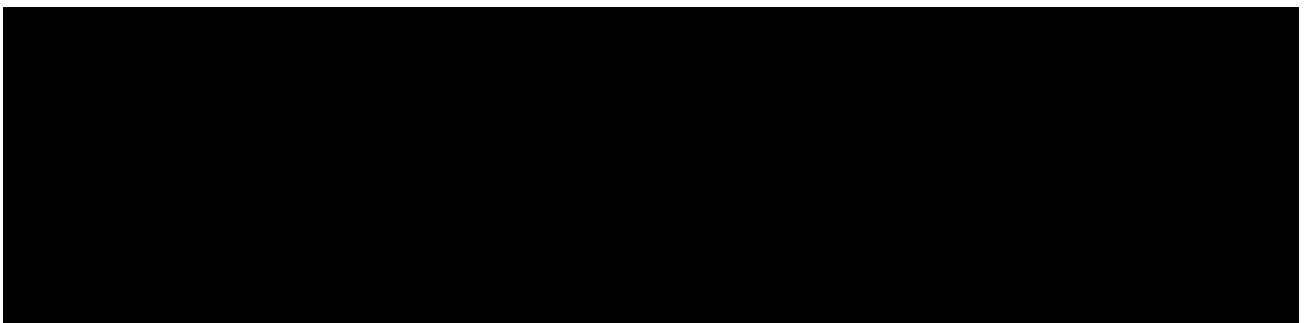


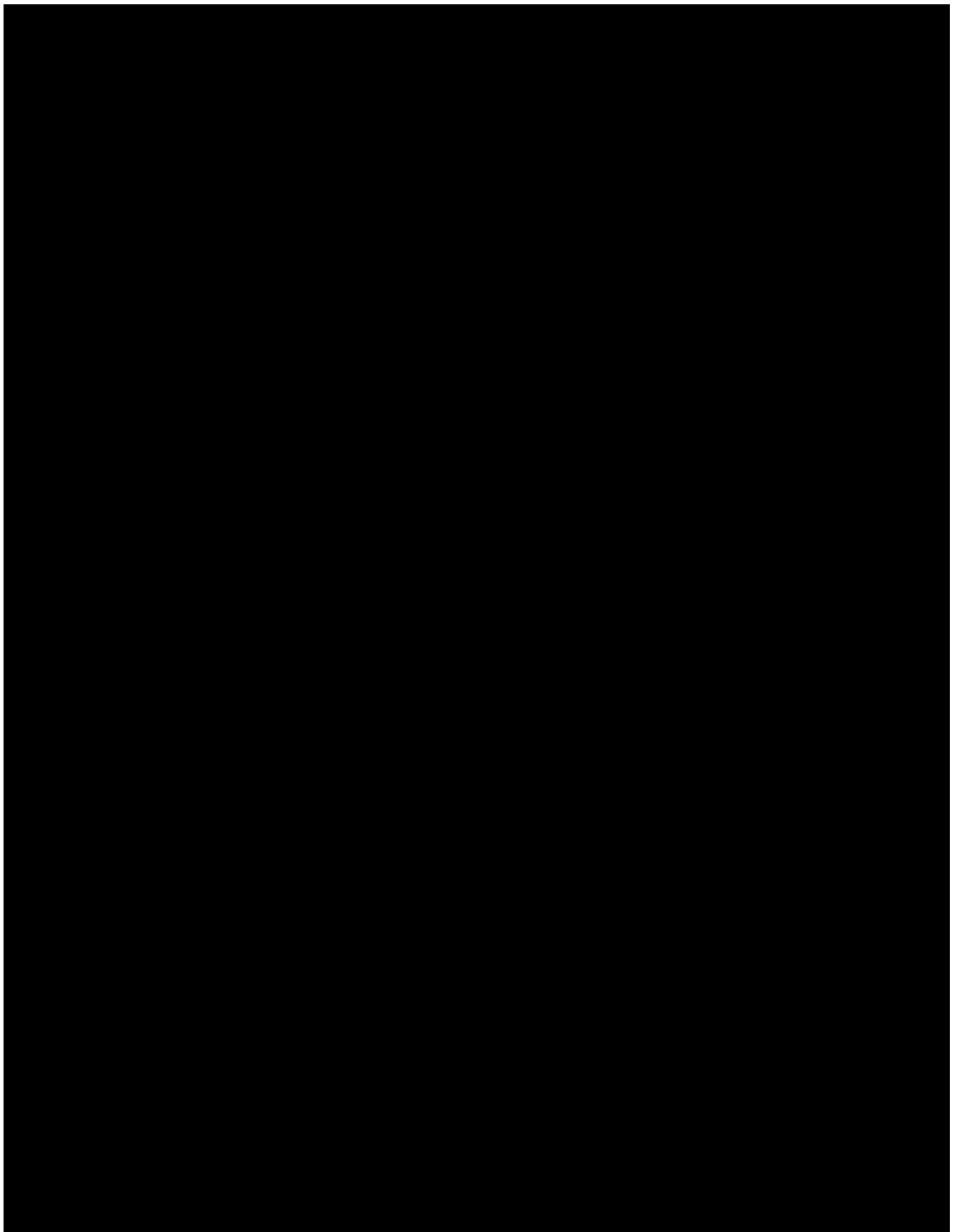
1.8.2 MOBILEvario – INIT's Service-proven AFC-specific Back Office Applications

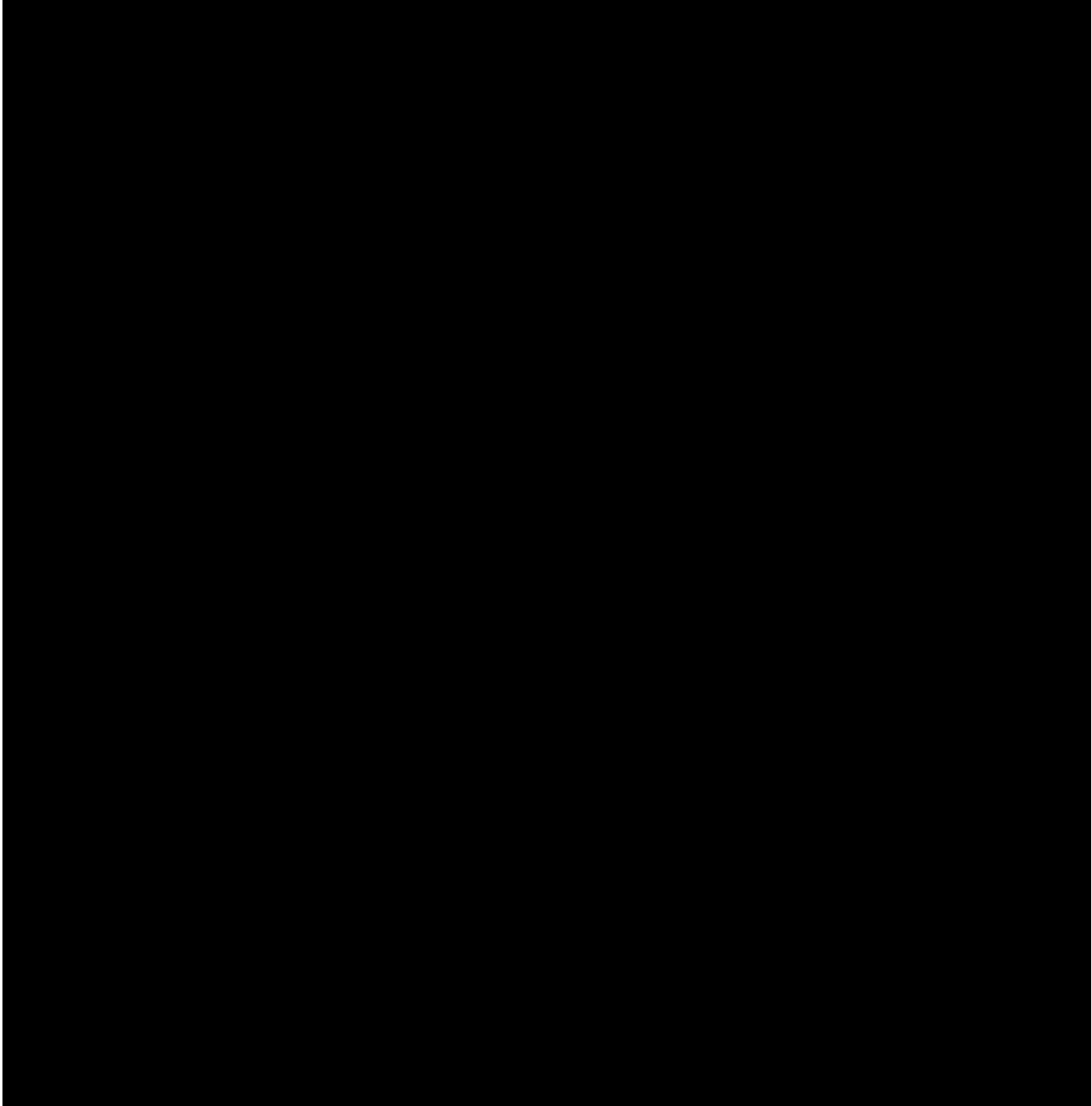




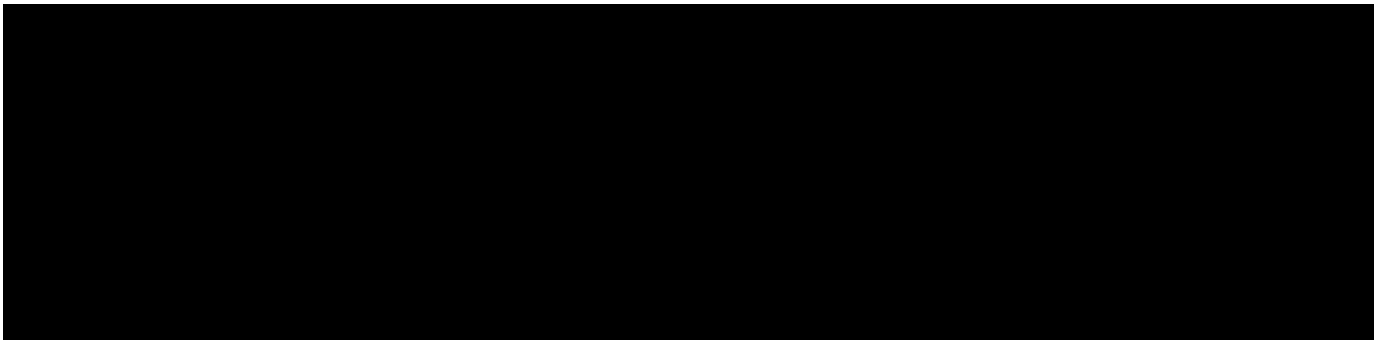
1.8.2.1 INIT's Service-proven Open Architecture APIs for Communications with the Back Office

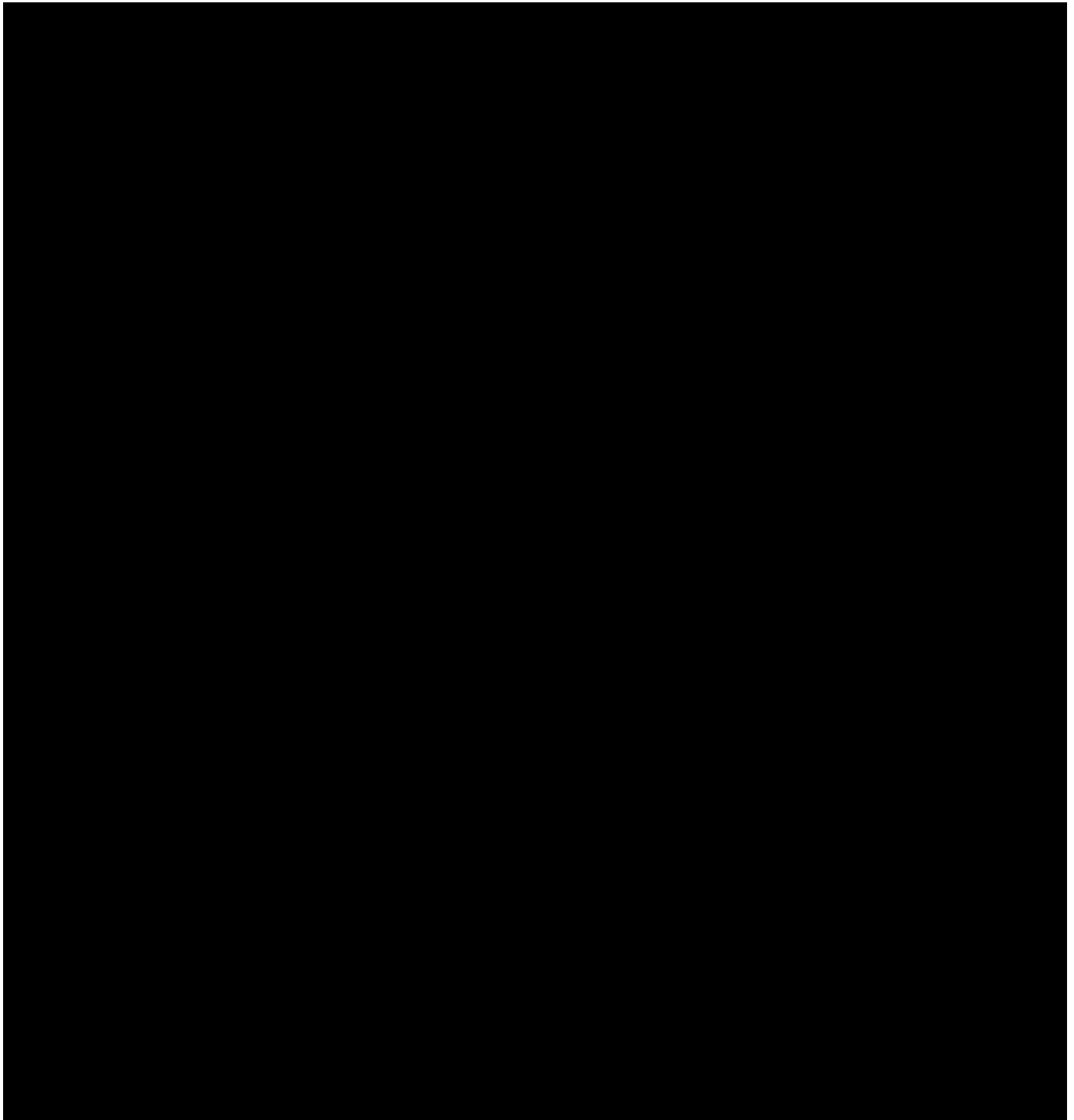


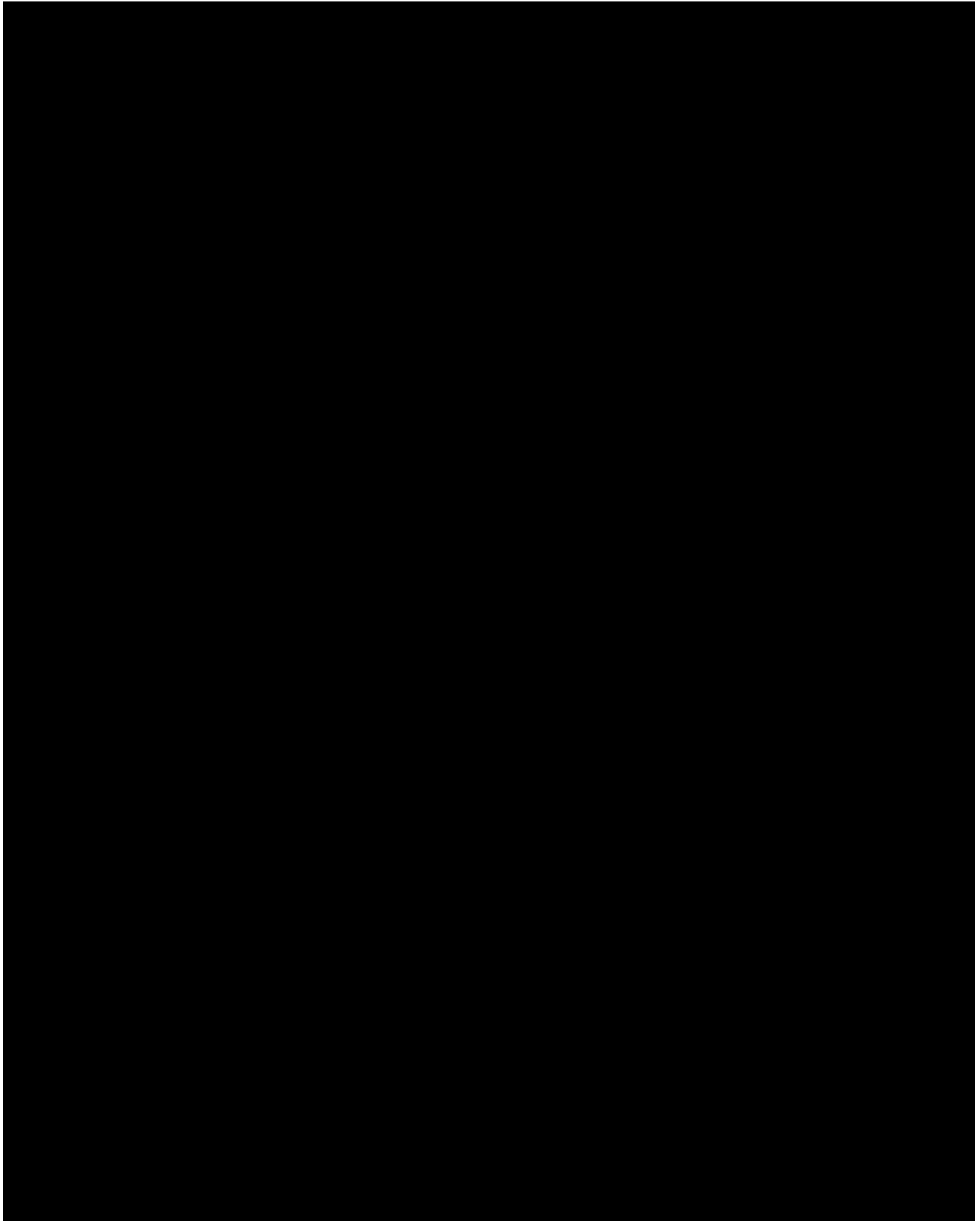




1.8.2.2 Online Validation (Account-based Transaction Processing)

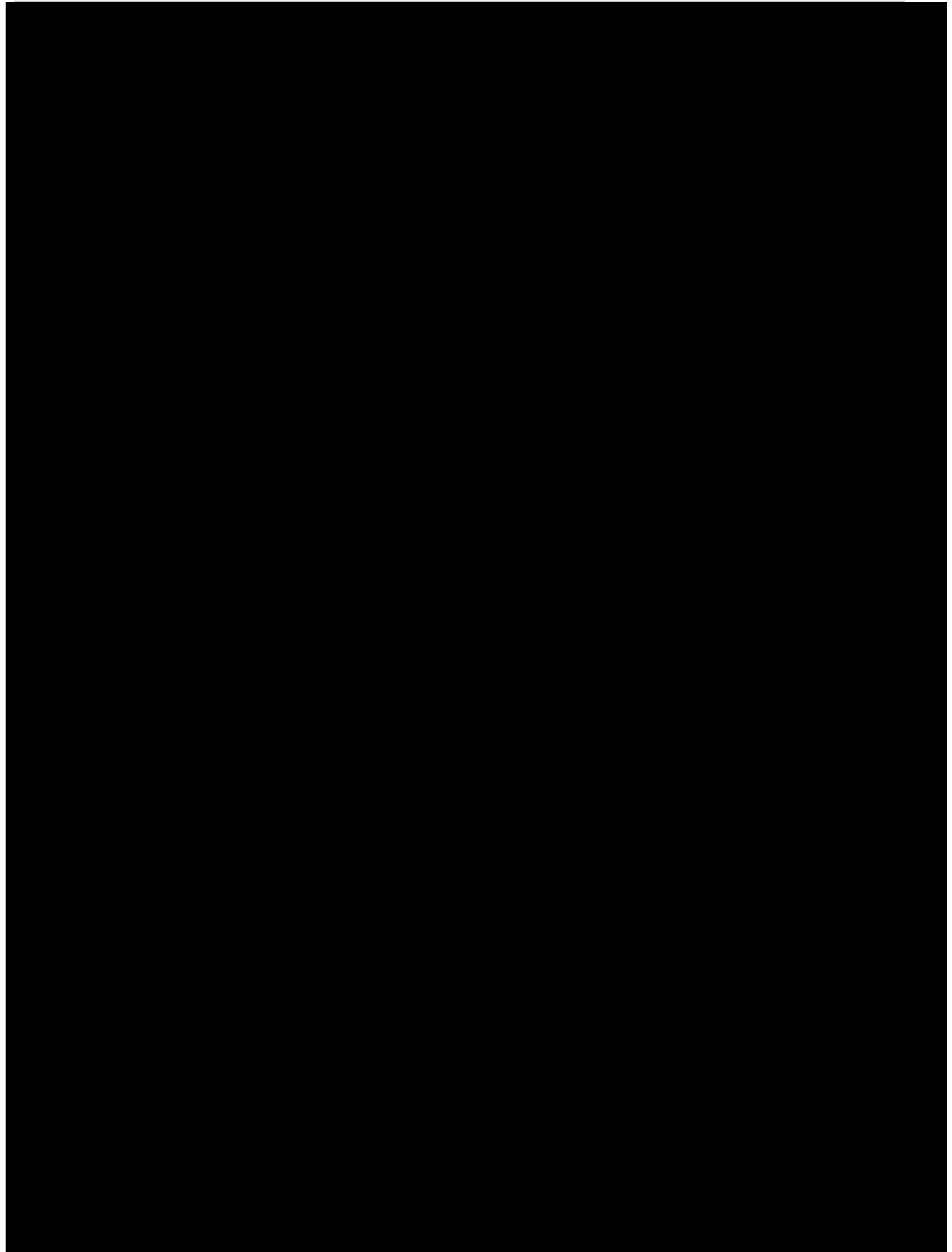


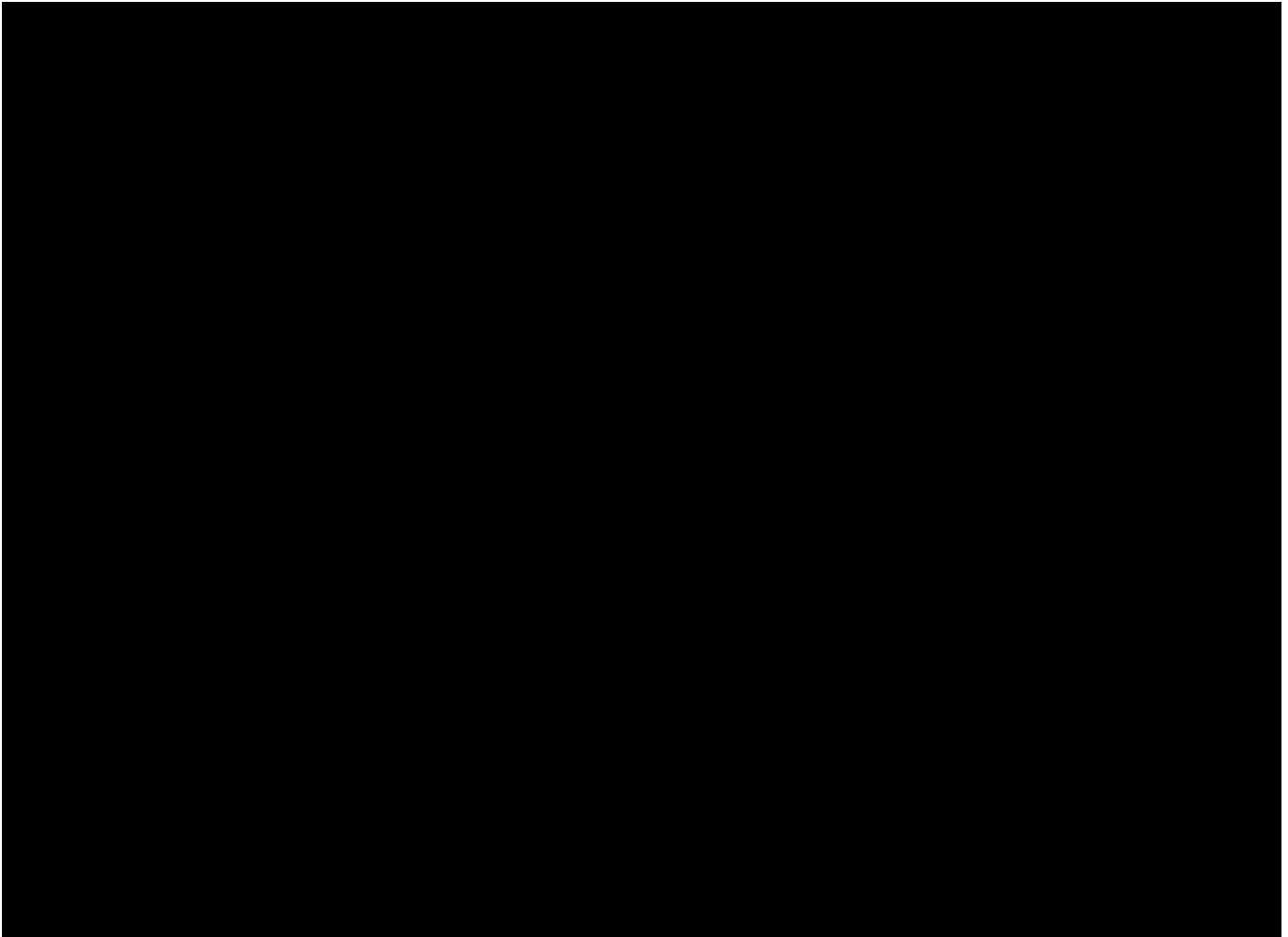




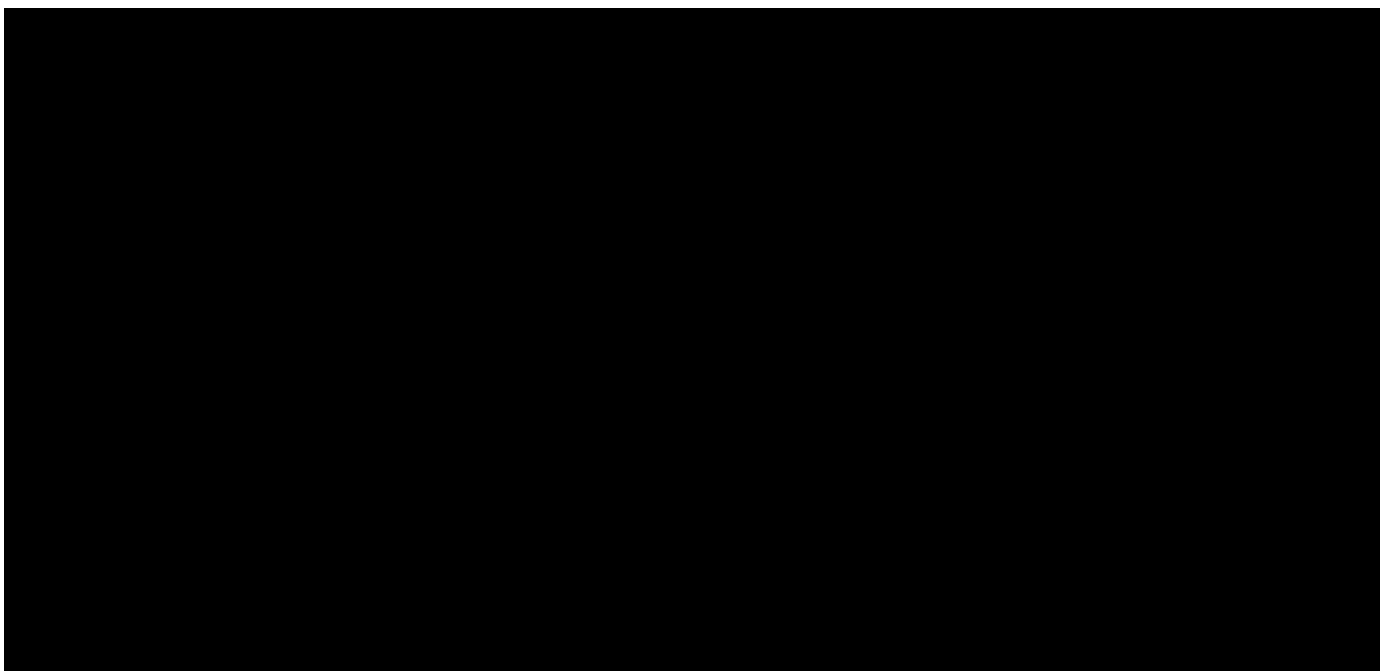


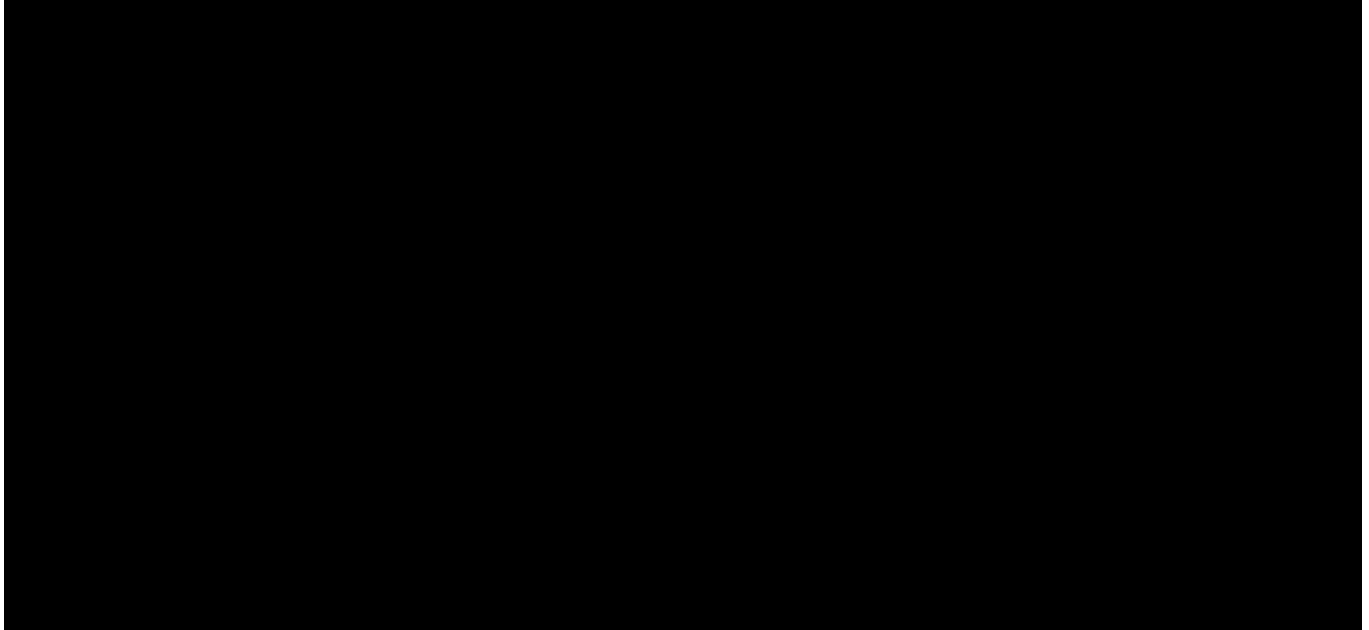
1.8.2.3 Fare Table Management





1.8.2.3.1 Overview of functionality



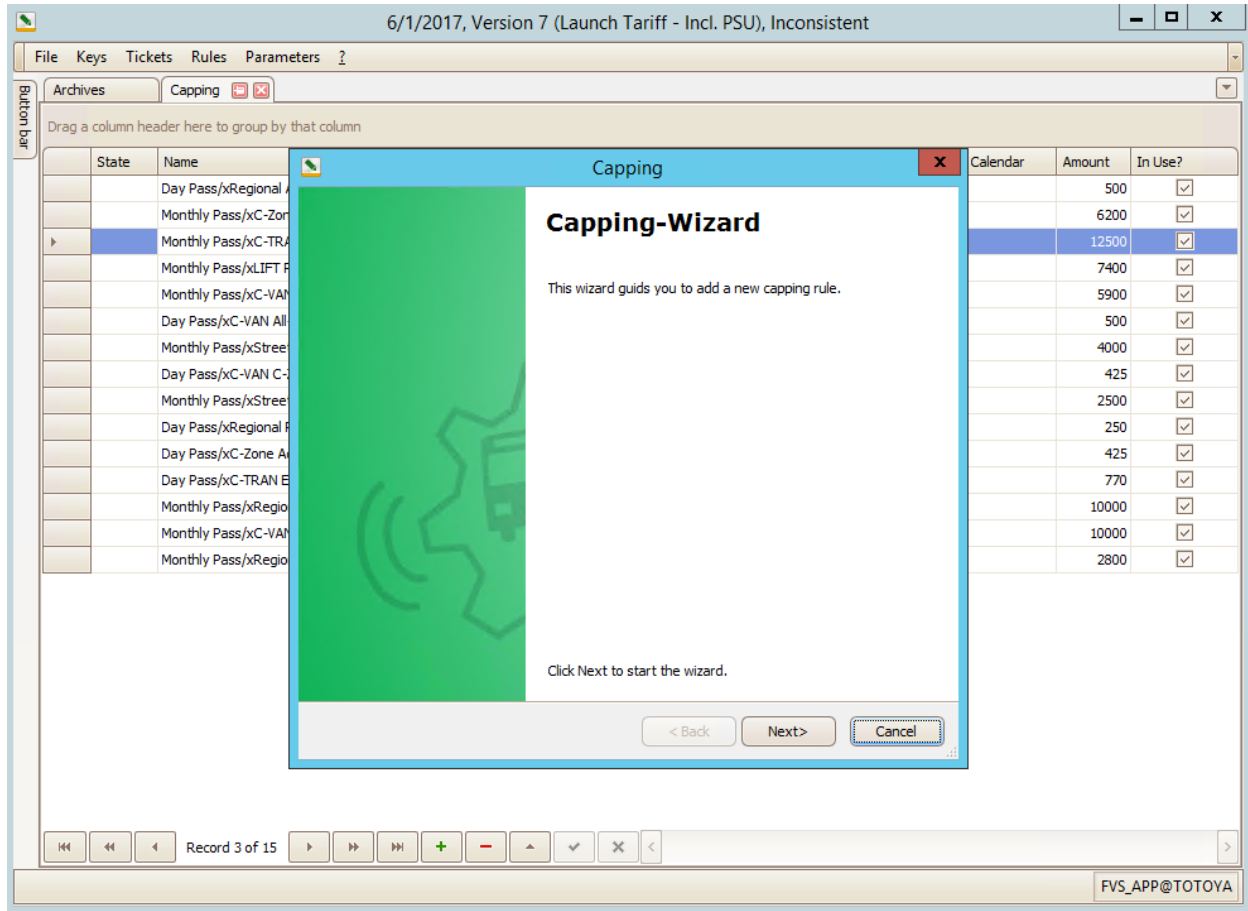


1.8.2.3.2 Example for a Configuration Change

As mentioned, configuration changes to the system are easy to accomplish.

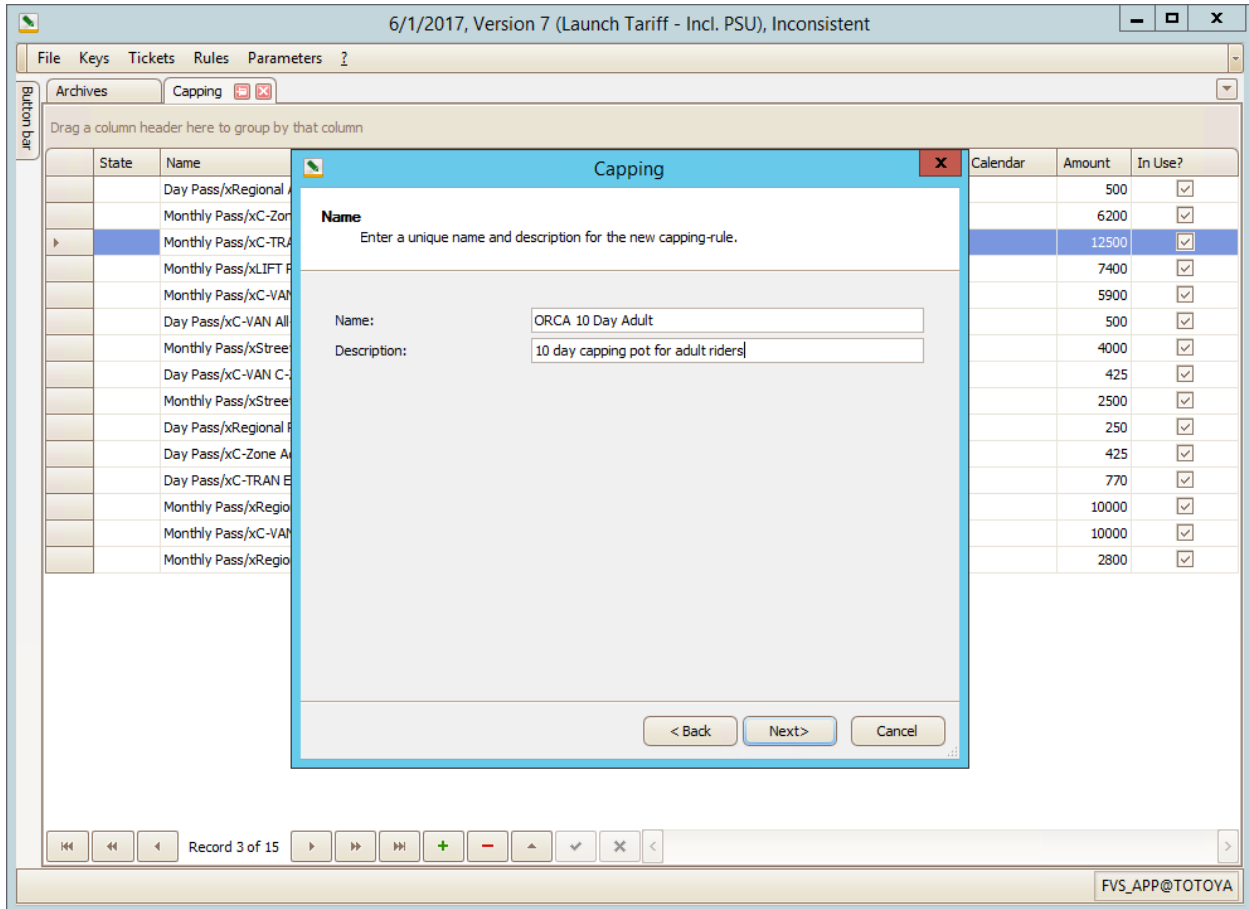
As an example we would like to show how a new capping pot can be added to the system. The scenario is that the ORCA project team wants to add a 10 day capping pot for Adult riders, valued at \$40.

In a first step the Capping Editor is opened and the button to add a new capping pot is selected.



Add new capping pot

The capping-wizard will lead the user through the creation of a new capping pot. The first step of the capping-wizard will ask for a name and description of the capping pot.



6/1/2017, Version 7 (Launch Tariff - Incl. PSU), Inconsistent

File Keys Tickets Rules Parameters ?

Archives Capping

Drag a column header here to group by that column

State	Name	Calendar	Amount	In Use?
	Day Pass/xRegional		500	<input checked="" type="checkbox"/>
	Monthly Pass/xC-Zone		6200	<input checked="" type="checkbox"/>
	Monthly Pass/xC-TRAN		12500	<input checked="" type="checkbox"/>
	Monthly Pass/xLIFT		7400	<input checked="" type="checkbox"/>
	Monthly Pass/xC-VAN		5900	<input checked="" type="checkbox"/>
	Day Pass/xC-VAN All		500	<input checked="" type="checkbox"/>
	Monthly Pass/xStreet		4000	<input checked="" type="checkbox"/>
	Day Pass/xC-VAN C-		425	<input checked="" type="checkbox"/>
	Monthly Pass/xStreet		2500	<input checked="" type="checkbox"/>
	Day Pass/xRegional		250	<input checked="" type="checkbox"/>
	Day Pass/xC-Zone A		425	<input checked="" type="checkbox"/>
	Day Pass/xC-TRAN E		770	<input checked="" type="checkbox"/>
	Monthly Pass/xRegion		10000	<input checked="" type="checkbox"/>
	Monthly Pass/xC-VAN		10000	<input checked="" type="checkbox"/>
	Monthly Pass/xRegion		2800	<input checked="" type="checkbox"/>

Capping

Name
Enter a unique name and description for the new capping-rule.

Name:

Description:

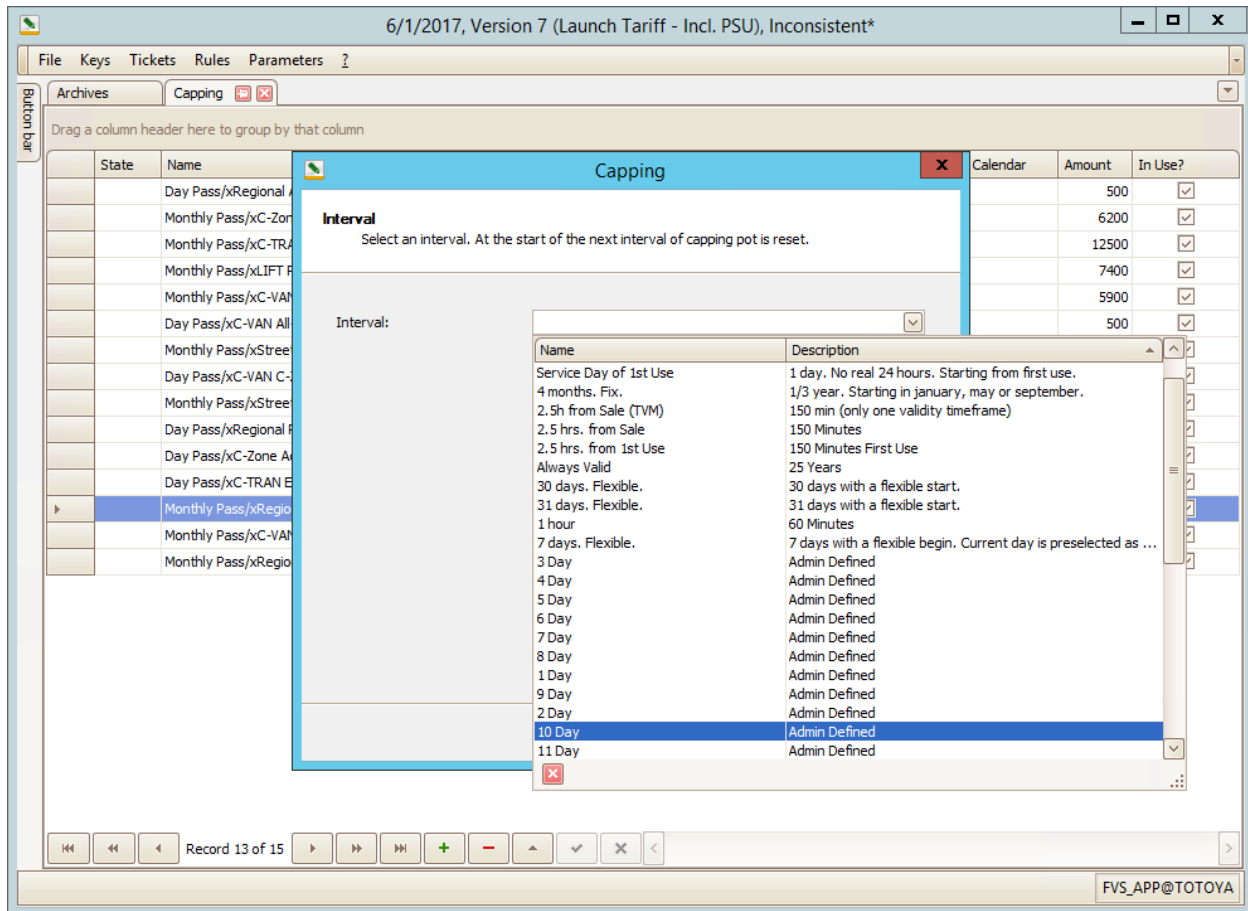
< Back Next> Cancel

Record 3 of 15

FVS_APP@TOTOYA

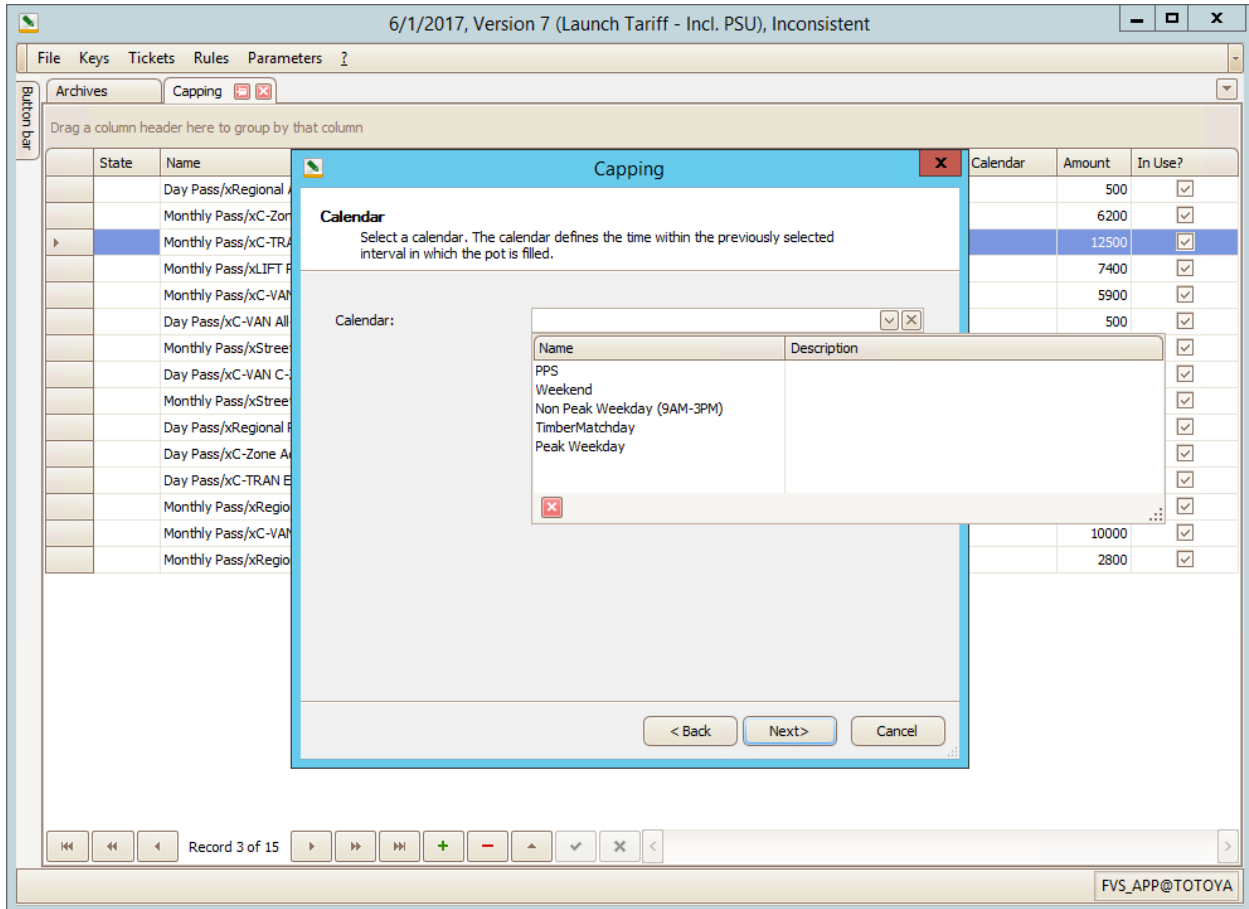
Capping Wizard, Step 1

The second step will ask to determine the time frame for the capping pot (in our example this will be 10 days). Those time frames can be freely configured in the 'Temporal Times' section. There is no limitation on the amount of time frames in the system.



Capping Wizard Step 2 – Select Interval

The third step of the capping wizard asks if a specific calendar should be assigned to the capping pot. This is helpful if the agency wants to configure a capping pot that is only active / can only be filled at specific calendar days, e.g. Sounders game days. In our example we leave the selection empty.



6/1/2017, Version 7 (Launch Tariff - Incl. PSU), Inconsistent

File Keys Tickets Rules Parameters ?

Archives Capping

Drag a column header here to group by that column

State	Name	Calendar	Amount	In Use?
	Day Pass/xRegional		500	<input checked="" type="checkbox"/>
	Monthly Pass/xC-Zone		6200	<input checked="" type="checkbox"/>
	Monthly Pass/xC-TR		12500	<input checked="" type="checkbox"/>
	Monthly Pass/xLIFT		7400	<input checked="" type="checkbox"/>
	Monthly Pass/xC-VAN		5900	<input checked="" type="checkbox"/>
	Day Pass/xC-VAN All		500	<input checked="" type="checkbox"/>
	Monthly Pass/xStre			<input checked="" type="checkbox"/>
	Day Pass/xC-VAN C-			<input checked="" type="checkbox"/>
	Monthly Pass/xStre			<input checked="" type="checkbox"/>
	Day Pass/xRegional			<input checked="" type="checkbox"/>
	Day Pass/xC-Zone A			<input checked="" type="checkbox"/>
	Day Pass/xC-TRAN E			<input checked="" type="checkbox"/>
	Monthly Pass/xRegio			<input checked="" type="checkbox"/>
	Monthly Pass/xC-VAN		10000	<input checked="" type="checkbox"/>
	Monthly Pass/xRegio		2800	<input checked="" type="checkbox"/>

Capping

Calendar

Select a calendar. The calendar defines the time within the previously selected interval in which the pot is filled.

Calendar:

Name	Description
PPS	
Weekend	
Non Peak Weekday (9AM-3PM)	
TimberMatchday	
Peak Weekday	

< Back Next> Cancel

Record 3 of 15

FVS_APP@TOTOYA

Capping Wizard Step 3 – Optional selection of a calendar

In the final step the amount of the capping put is defined (in cents).

6/1/2017, Version 7 (Launch Tariff - Incl. PSU), Inconsistent

File Keys Tickets Rules Parameters ?

Archives Capping

Drag a column header here to group by that column

State	Name	Calendar	Amount	In Use?
	Day Pass/xRegional		500	<input checked="" type="checkbox"/>
	Monthly Pass/xC-Zone		6200	<input checked="" type="checkbox"/>
	Monthly Pass/xC-TRAN		12500	<input checked="" type="checkbox"/>
	Monthly Pass/xLIFT		7400	<input checked="" type="checkbox"/>
	Monthly Pass/xC-VAN		5900	<input checked="" type="checkbox"/>
	Day Pass/xC-VAN All		500	<input checked="" type="checkbox"/>
	Monthly Pass/xStreet		4000	<input checked="" type="checkbox"/>
	Day Pass/xC-VAN C-		425	<input checked="" type="checkbox"/>
	Monthly Pass/xStreet		2500	<input checked="" type="checkbox"/>
	Day Pass/xRegional		250	<input checked="" type="checkbox"/>
	Day Pass/xC-Zone A		425	<input checked="" type="checkbox"/>
	Day Pass/xC-TRAN E		770	<input checked="" type="checkbox"/>
	Monthly Pass/xRegion		10000	<input checked="" type="checkbox"/>
	Monthly Pass/xC-VAN		10000	<input checked="" type="checkbox"/>
	Monthly Pass/xRegion		2800	<input checked="" type="checkbox"/>

Capping

Max amount.
Enter the capping amount.

Max amount.

< Back Next> Cancel

Record 3 of 15

FVS_APP@TOTOYA

Capping Wizard Step 4 – Configure Capping Amount

6/1/2017, Version 7 (Launch Tariff - Incl. PSU), Inconsistent*

File Keys Tickets Rules Parameters ?

Archives Capping

Drag a column header here to group by that column

State	Name	Description	Card-pot	Interval	Calendar	Amount	In Use?
	Day Pass/xRegional Adult Daily	Day Pass		1 Service Day of Sale		500	<input checked="" type="checkbox"/>
	Monthly Pass/xC-Zone Adult Monthly	Monthly Pass		10 Calendar month. Current m...		6200	<input checked="" type="checkbox"/>
	Monthly Pass/xC-TRAN Express Monthly	Monthly Pass		11 Calendar month. Current m...		12500	<input checked="" type="checkbox"/>
	Monthly Pass/xLIFT Paratransit Monthly	Monthly Pass		12 Calendar month. Current m...		7400	<input checked="" type="checkbox"/>
	Monthly Pass/xC-VAN C-Zone Paratransit M...	Monthly Pass		13 Calendar month. Current m...		5900	<input checked="" type="checkbox"/>
	Day Pass/xC-VAN All-Zone Paratransit Daily	Day Pass		16 Service Day of Sale		500	<input checked="" type="checkbox"/>
	Monthly Pass/xStreetcar Adult Monthly	Monthly Pass		17 Calendar month. Current m...		4000	<input checked="" type="checkbox"/>
	Day Pass/xC-VAN C-Zone Paratransit Daily	Day Pass		18 Service Day of Sale		425	<input checked="" type="checkbox"/>
	Monthly Pass/xStreetcar Reduced Monthly	Monthly Pass		2 Calendar month. Current m...		2500	<input checked="" type="checkbox"/>
	Day Pass/xRegional Reduced Daily	Day Pass		3 Service Day of Sale		250	<input checked="" type="checkbox"/>
	Day Pass/xC-Zone Adult Daily	Day Pass		4 Service Day of Sale		425	<input checked="" type="checkbox"/>
	Day Pass/xC-TRAN Express Daily	Day Pass		5 Service Day of Sale		770	<input checked="" type="checkbox"/>
I +	ORCA 10 Day Adult	10 day capping pot for ...		6 10 Day		4000	<input type="checkbox"/>
	Monthly Pass/xRegional Adult Monthly	Monthly Pass		7 Calendar month. Current m...		10000	<input checked="" type="checkbox"/>
	Monthly Pass/xC-VAN All-Zone Paratransit ...	Monthly Pass		8 Calendar month. Current m...		10000	<input checked="" type="checkbox"/>
	Monthly Pass/xRegional Reduced Monthly	Monthly Pass		9 Calendar month. Current m...		2800	<input checked="" type="checkbox"/>

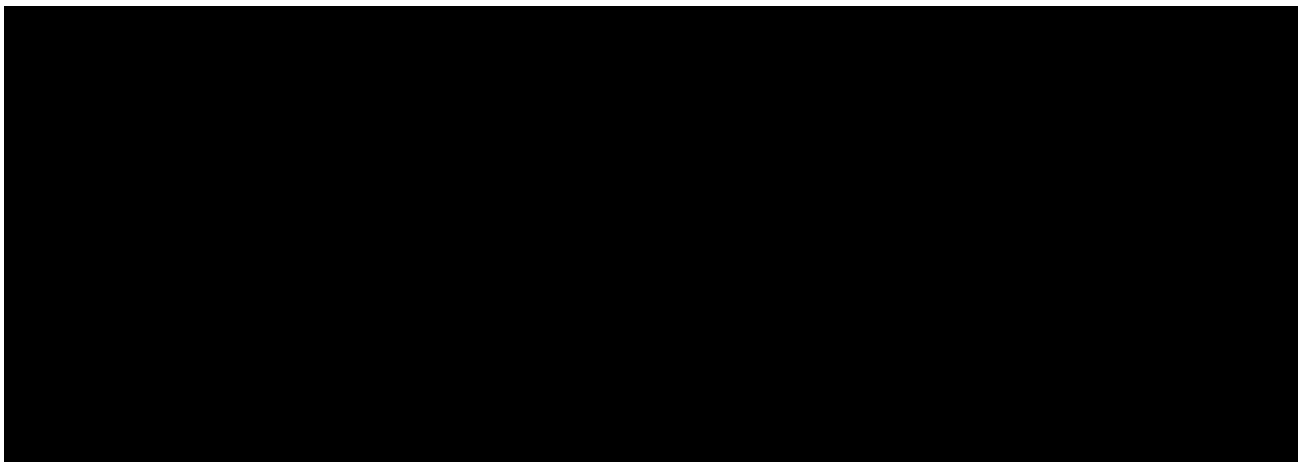
Record 13 of 16

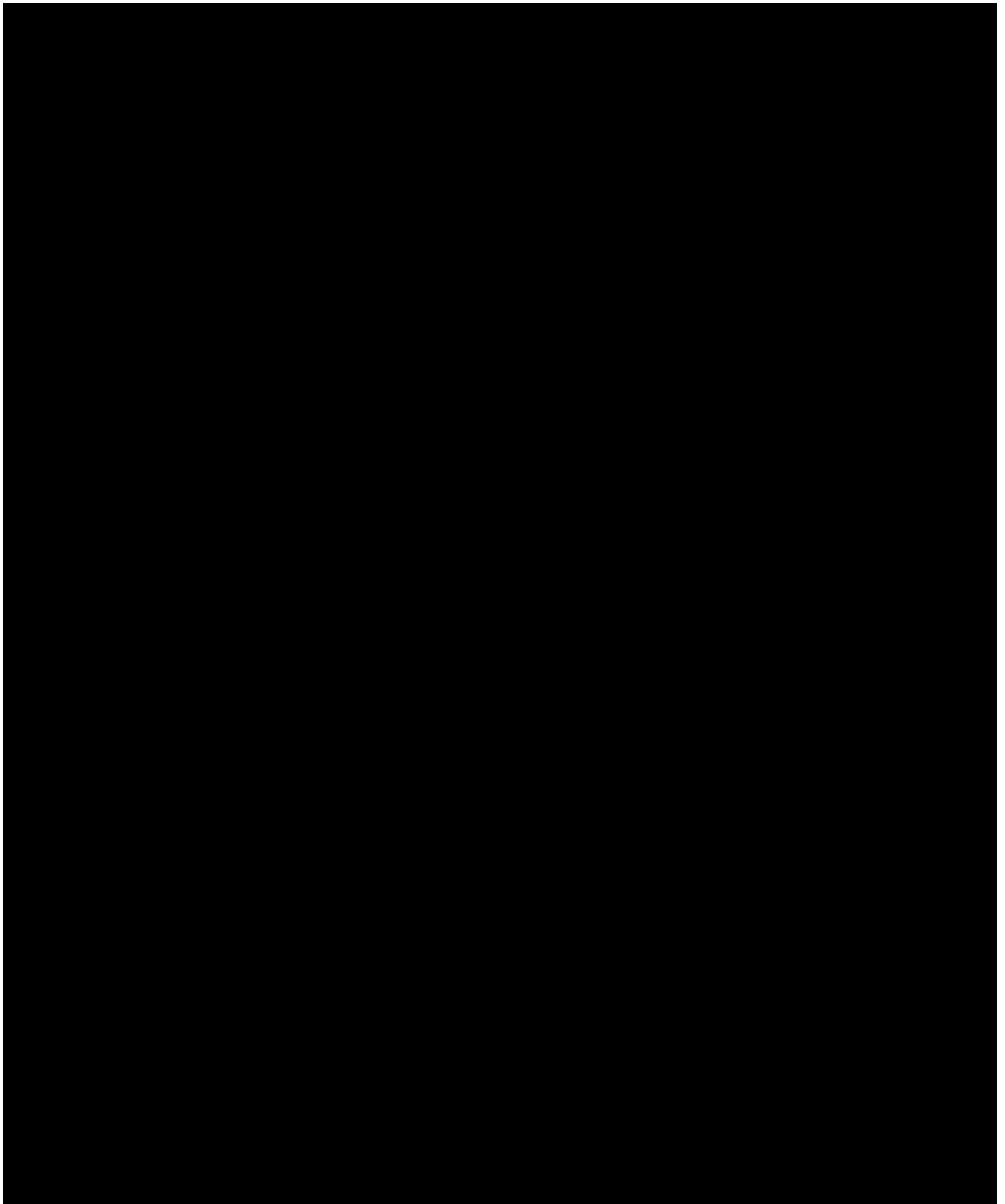
FVS_APP@TOTOYA

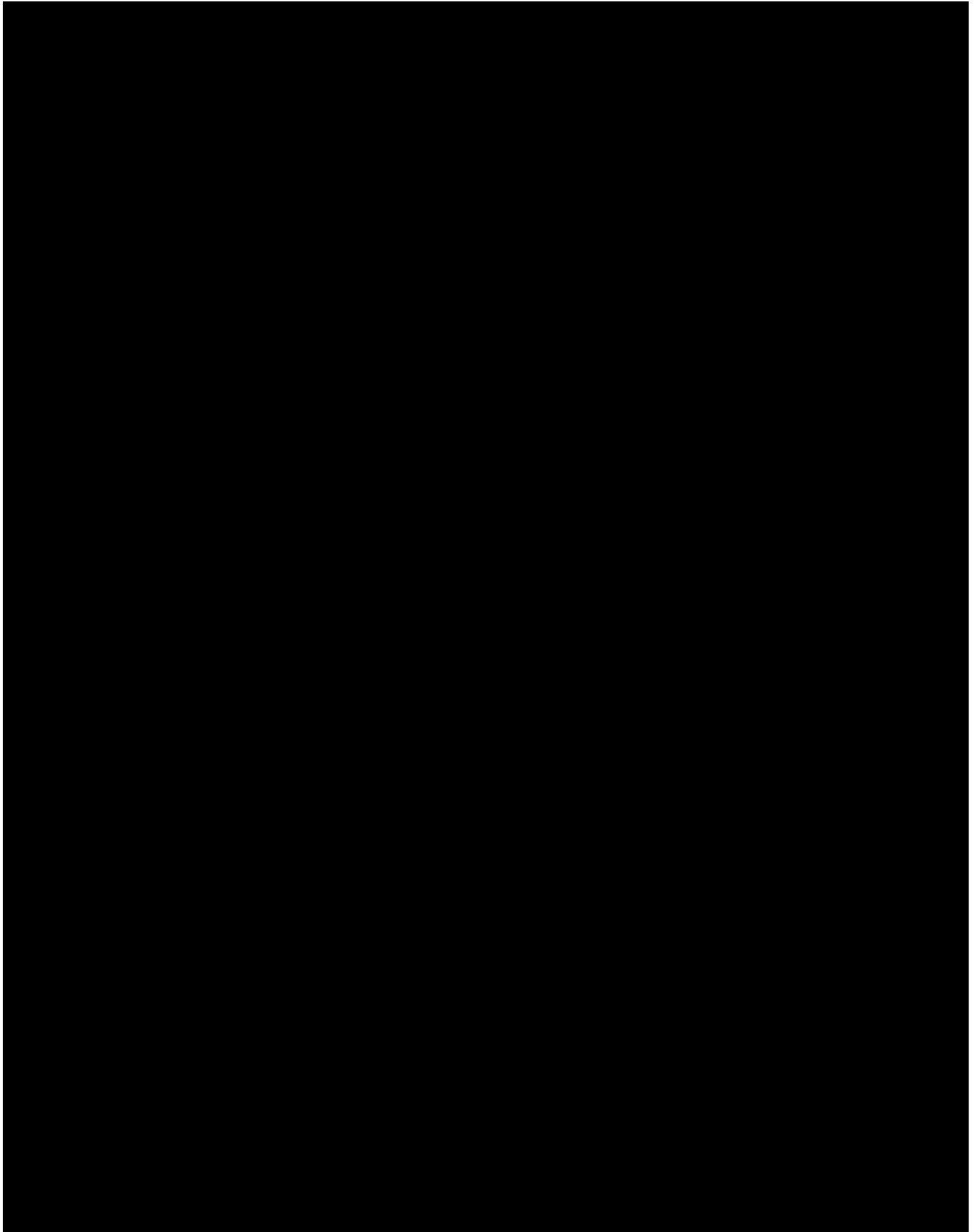
Capping Pot Overview Including the Newly Created Capping Pot

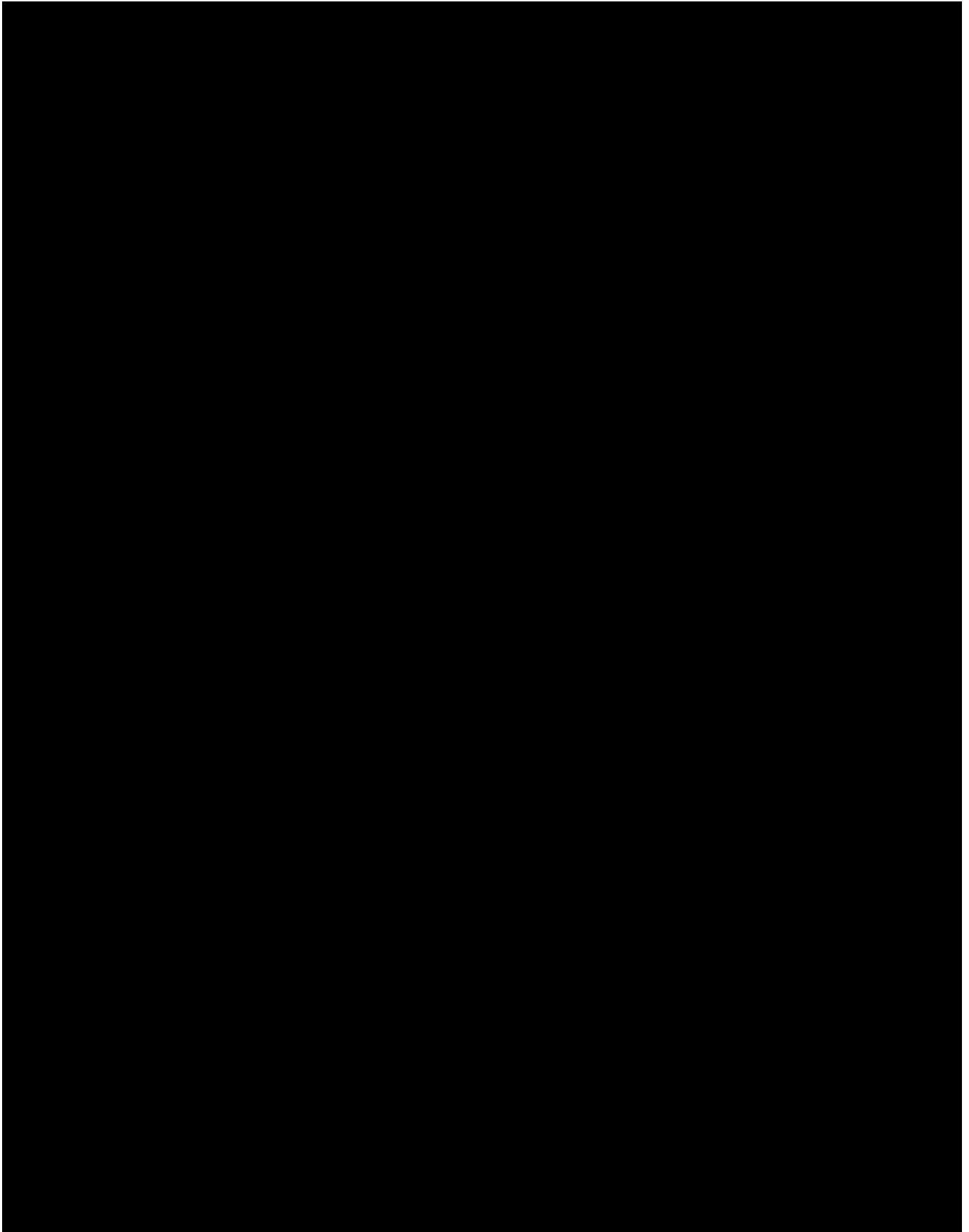
This concludes the setup of a new capping pot. This capping pot can now be assigned to one or multiple products (e.g. to Adult Sound Transit Rides and Adult KCM rides).

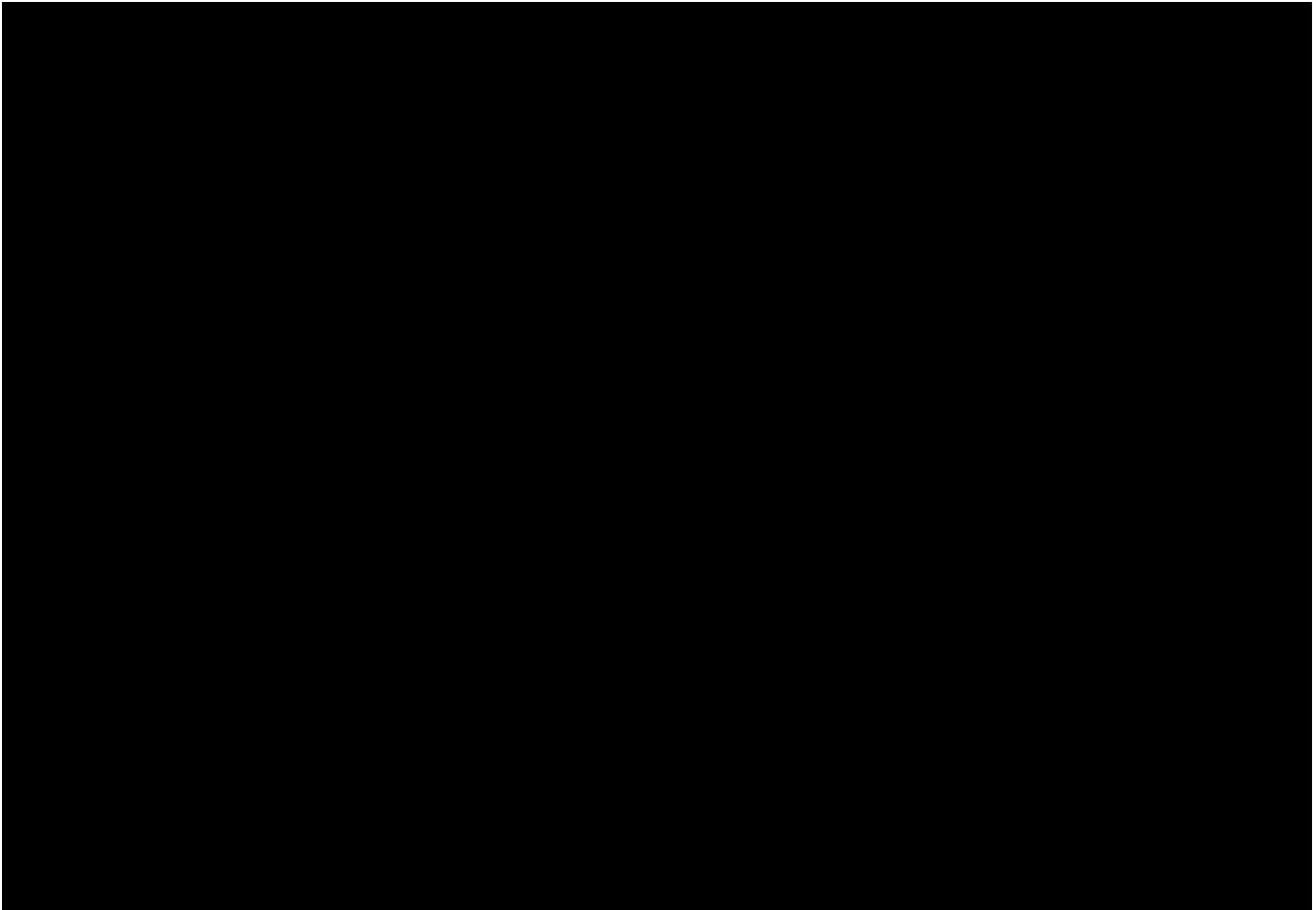
1.8.2.3.3 Matrix Editor (MX)



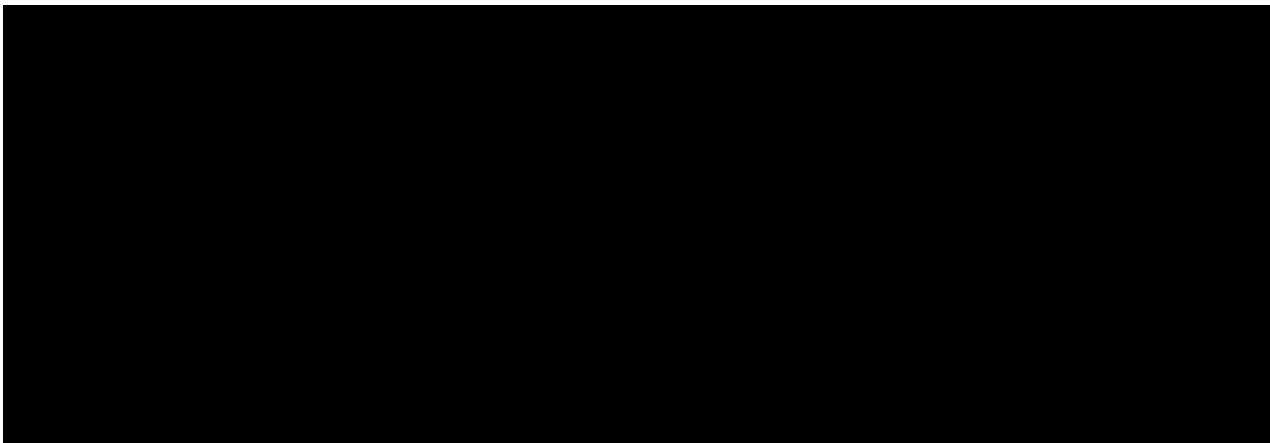


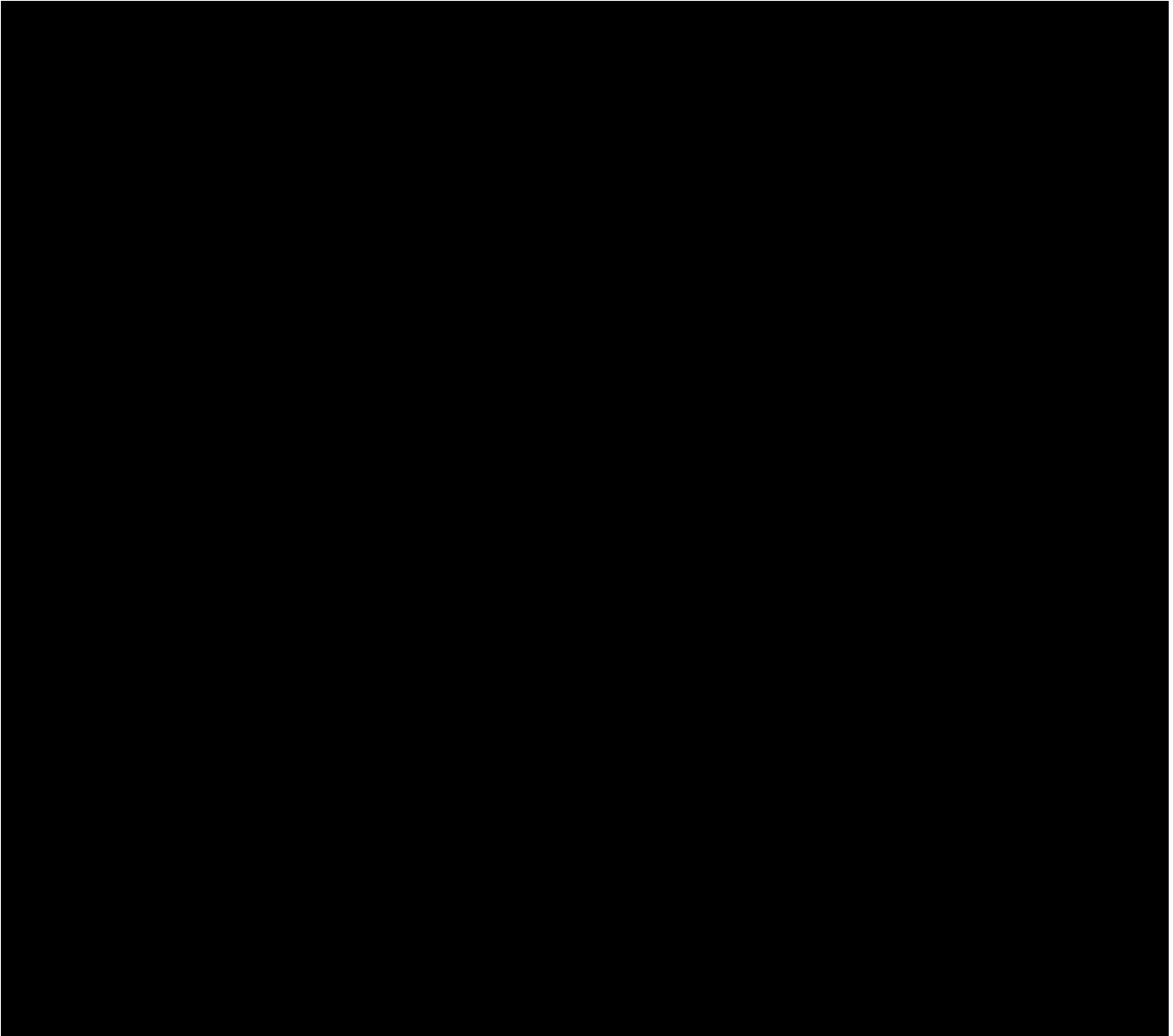


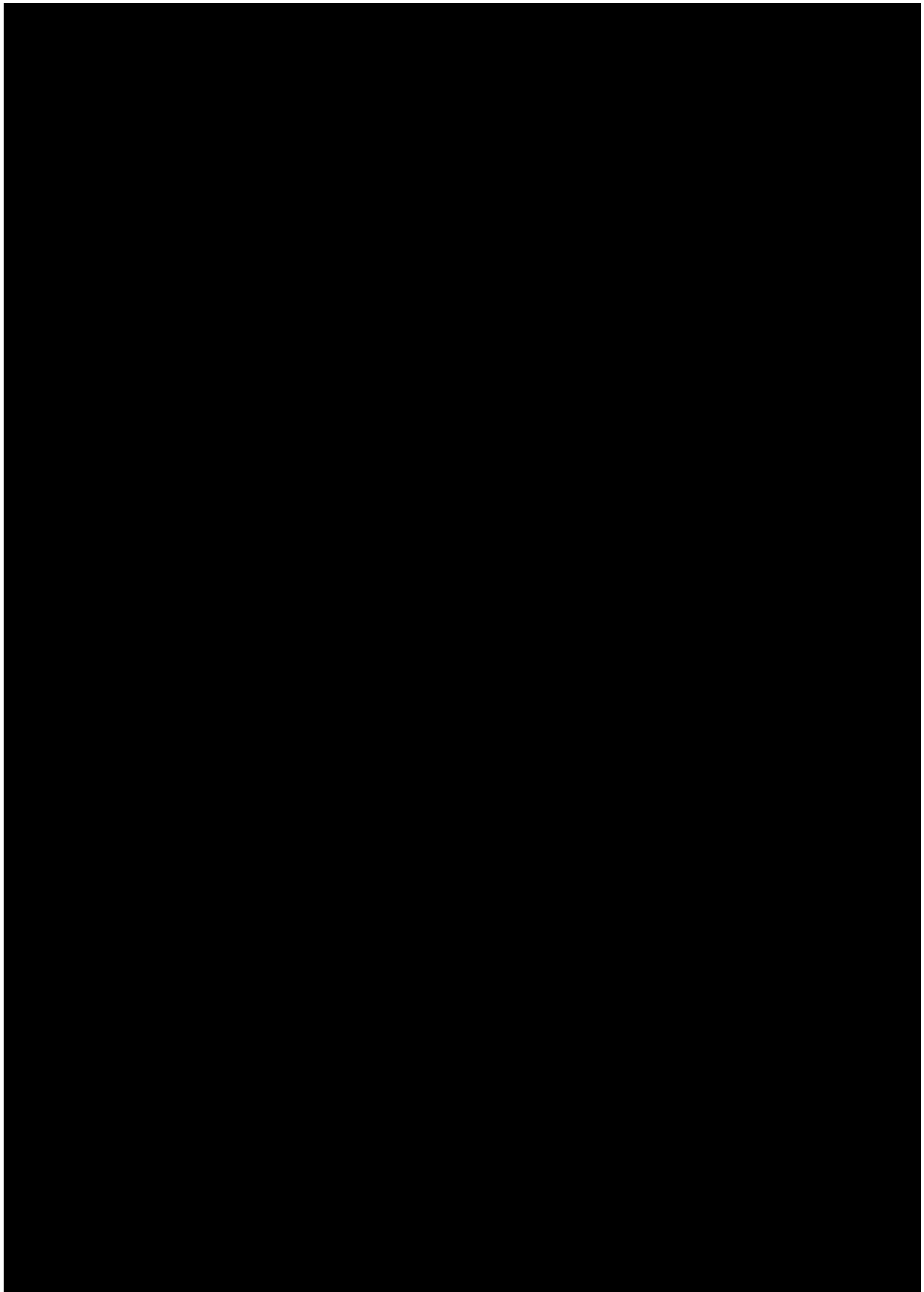


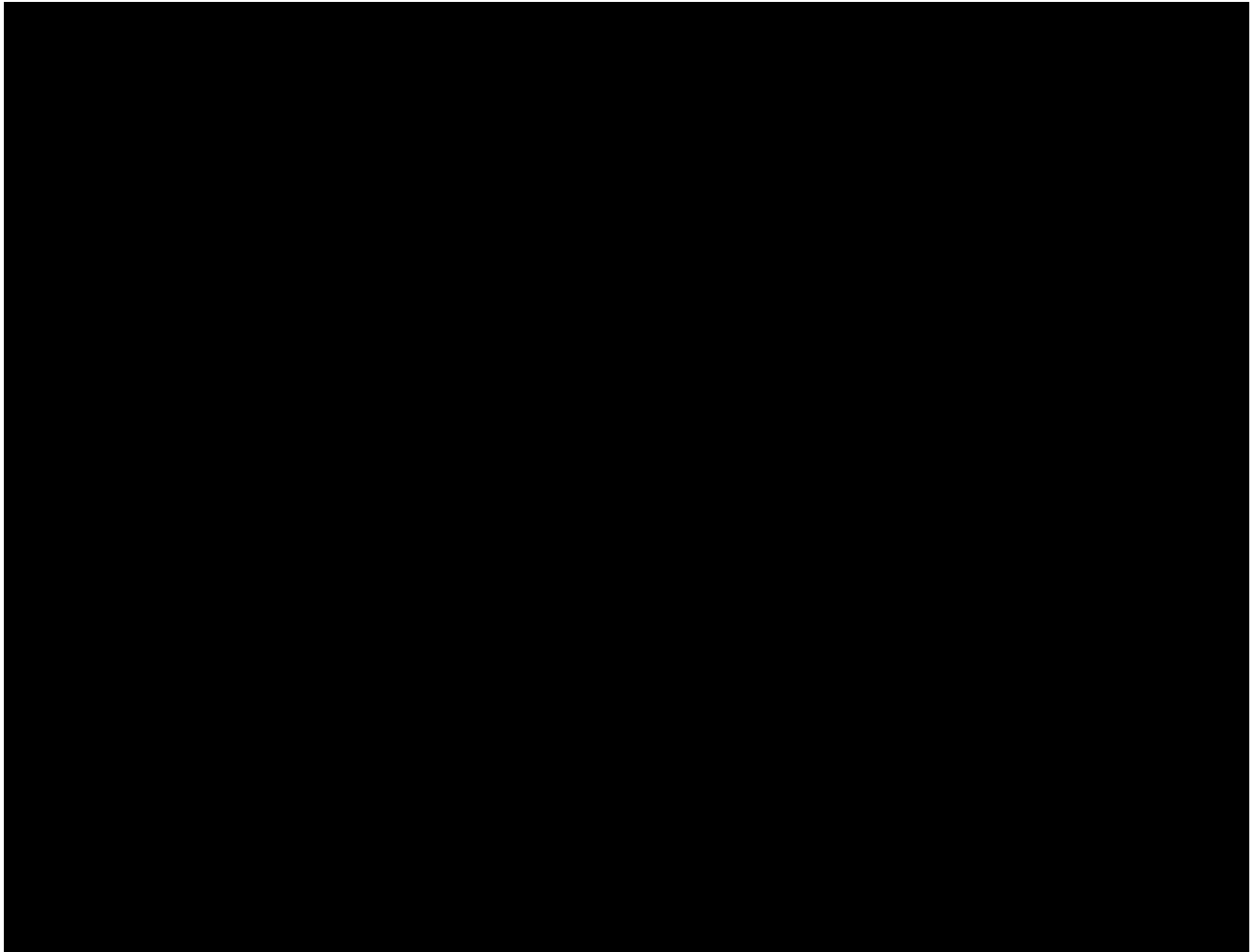


1.8.2.4 System Administration

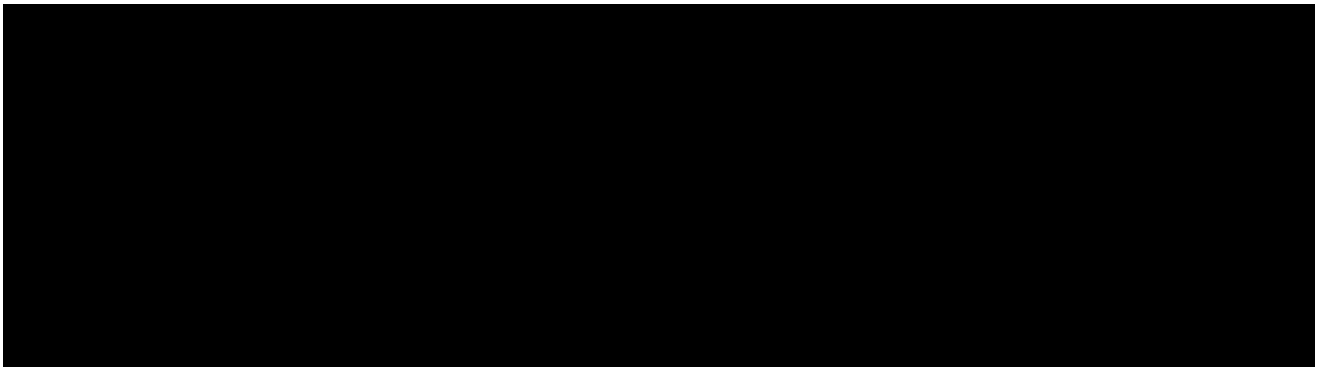






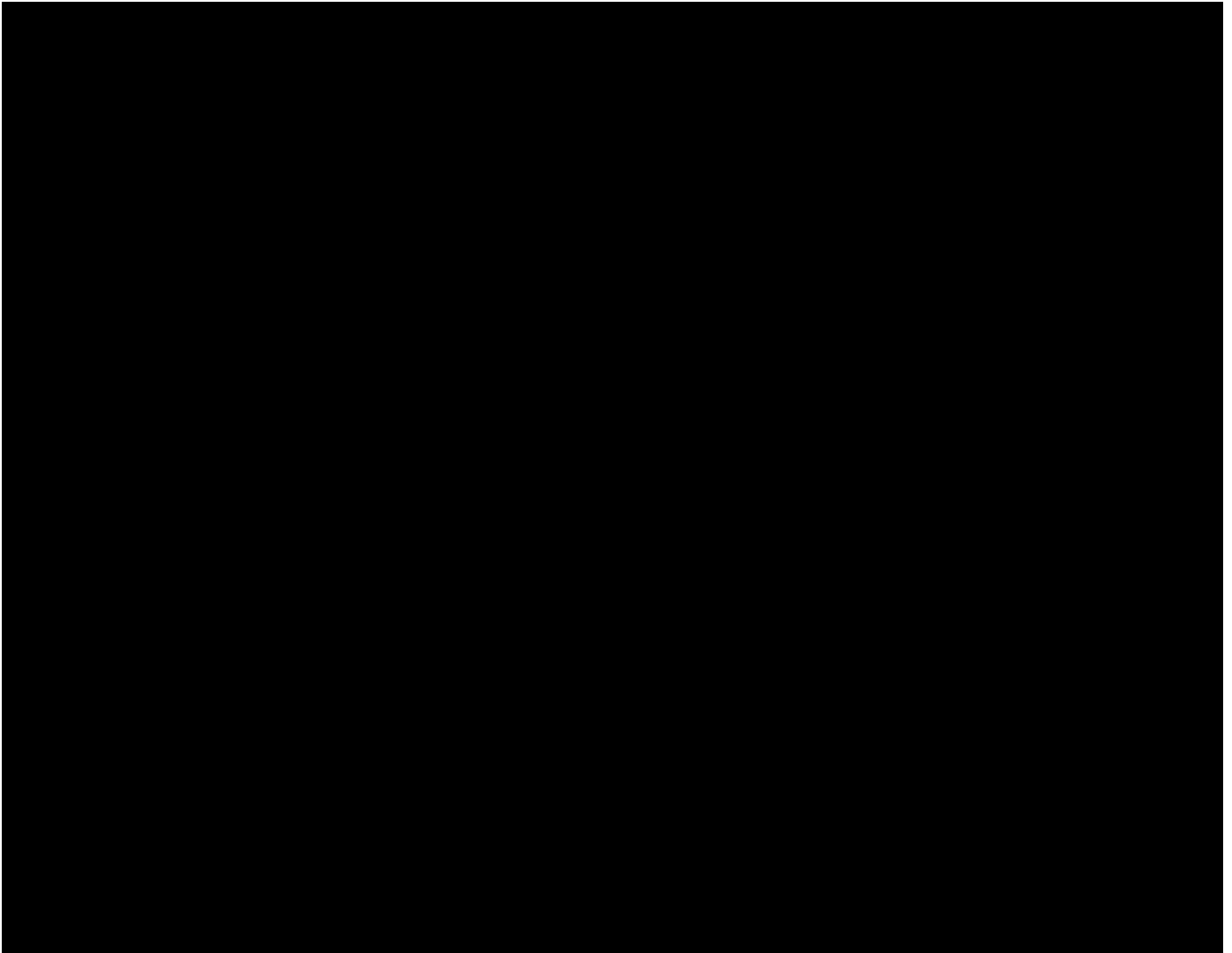


1.8.2.5 Revenue Management

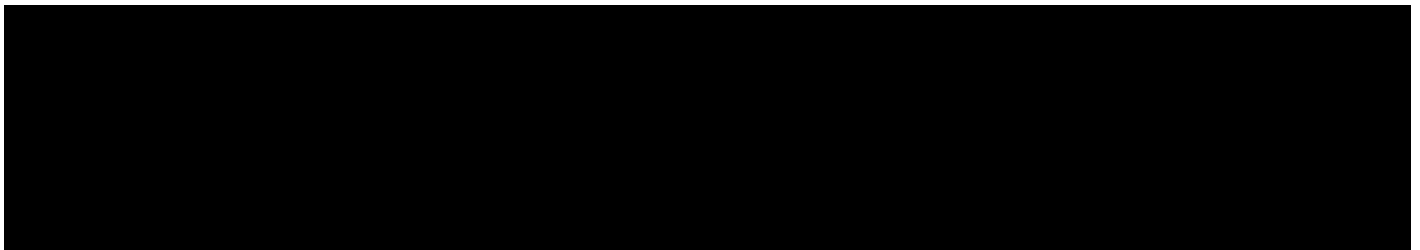


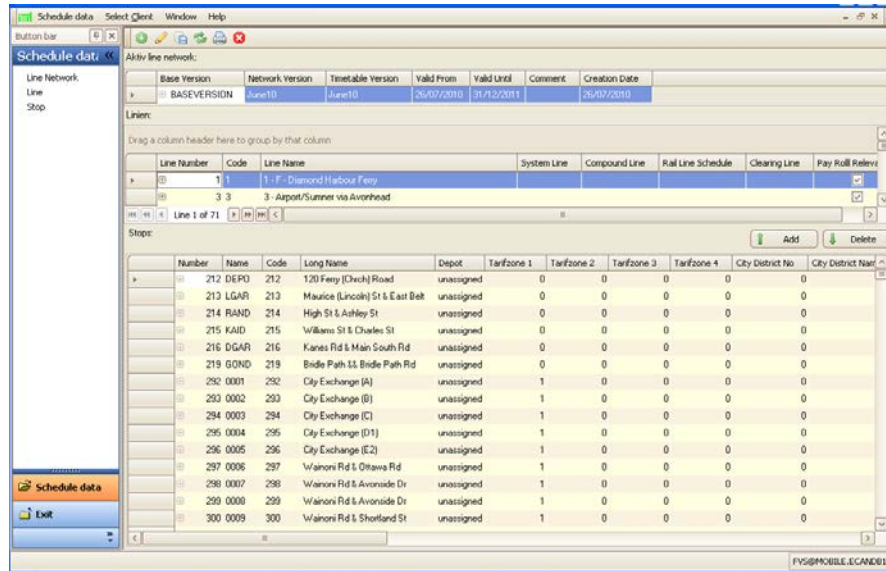


1.8.2.6 System Parameter Management/Configuration Management



1.8.2.7 Master Data Management





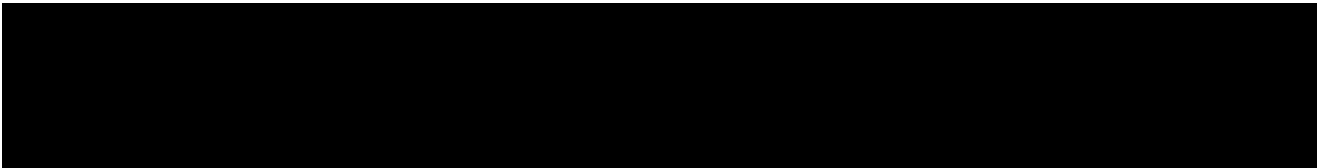
The screenshot shows the 'Schedule data' application window. It features a menu bar (File, Edit, View, Window, Help), a toolbar, and a sidebar with 'Schedule data', 'Line Network', 'Line', and 'Stop'. The main area displays a table of transit lines and stops.

Line Number	Code	Line Name	System Line	Compound Line	Rail Line Schedule	Clearing Line	Pay Roll Relate
1		1 - F - Diamond Harbour Ferry					
3	3	3 - Airport/Summer via Avonhead					

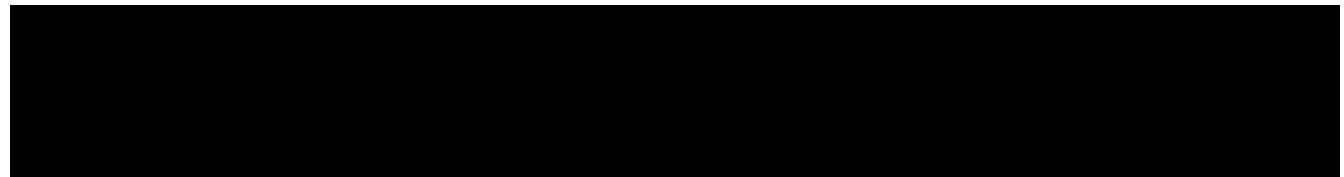
Number	Name	Code	Long Name	Depot	Tariffzone 1	Tariffzone 2	Tariffzone 3	Tariffzone 4	City District No	City District Name
212	DEPO	212	120 Ferry (Check) Road	unassigned	0	0	0	0	0	
213	LGAR	213	Maurice (Lincoln) St & East Belt	unassigned	0	0	0	0	0	
214	RAND	214	High St & Ashley St	unassigned	0	0	0	0	0	
215	KARD	215	Williams St & Charles St	unassigned	0	0	0	0	0	
216	DGAR	216	Kanes Rd & Main South Rd	unassigned	0	0	0	0	0	
219	GOND	219	Bride Path St. Bridge Path Rd	unassigned	0	0	0	0	0	
292	0001	292	City Exchange (A)	unassigned	1	0	0	0	0	
293	0002	293	City Exchange (B)	unassigned	1	0	0	0	0	
294	0003	294	City Exchange (C)	unassigned	1	0	0	0	0	
295	0004	295	City Exchange (D1)	unassigned	1	0	0	0	0	
296	0005	296	City Exchange (E2)	unassigned	1	0	0	0	0	
297	0006	297	Wainoni Rd & Ottawa Rd	unassigned	1	0	0	0	0	
298	0007	298	Wainoni Rd & Avonside Dr	unassigned	1	0	0	0	0	
299	0008	299	Wainoni Rd & Avonside Dr	unassigned	1	0	0	0	0	
300	0009	300	Wainoni Rd & Shortland St	unassigned	1	0	0	0	0	

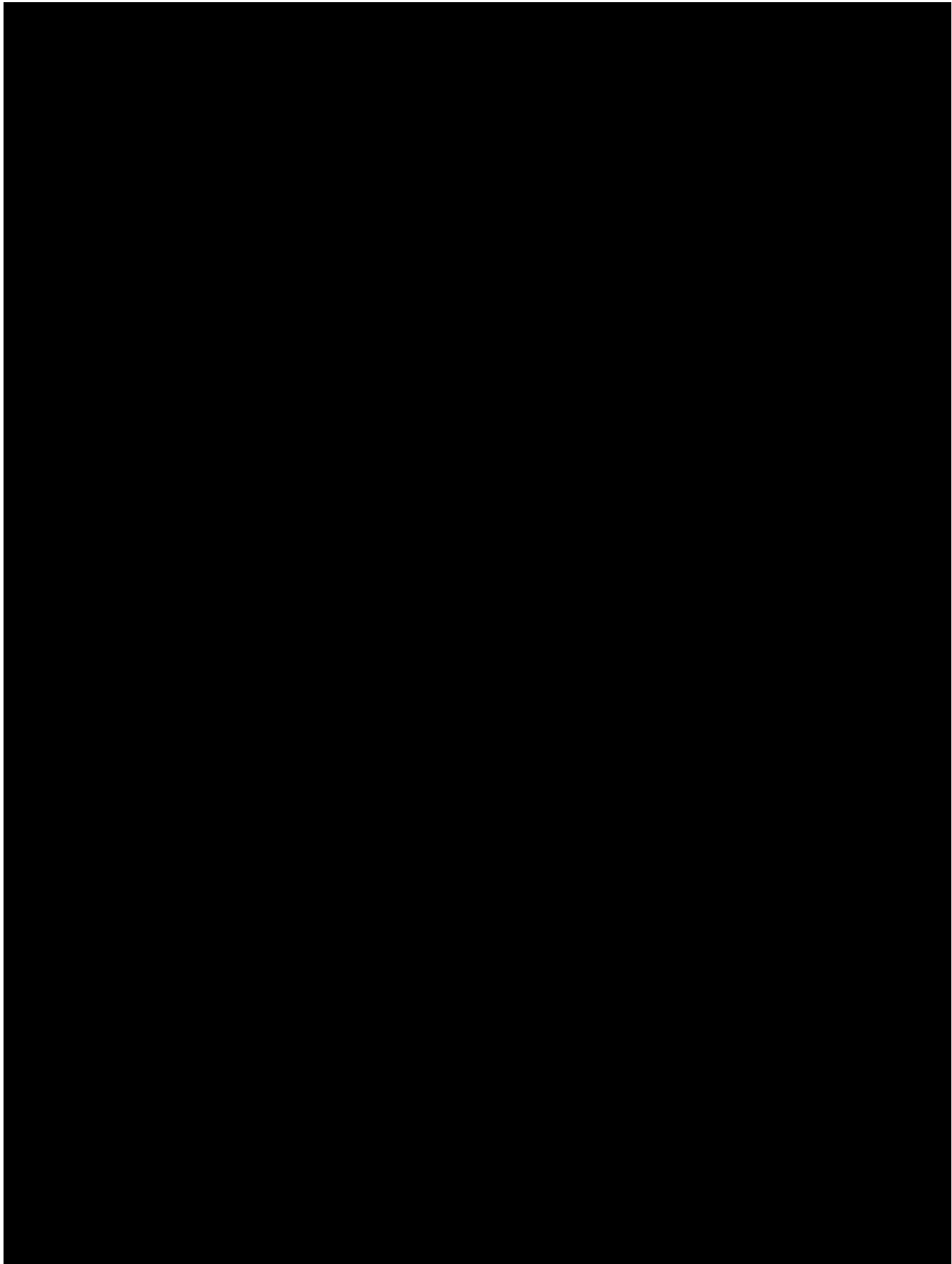
Master Data Management

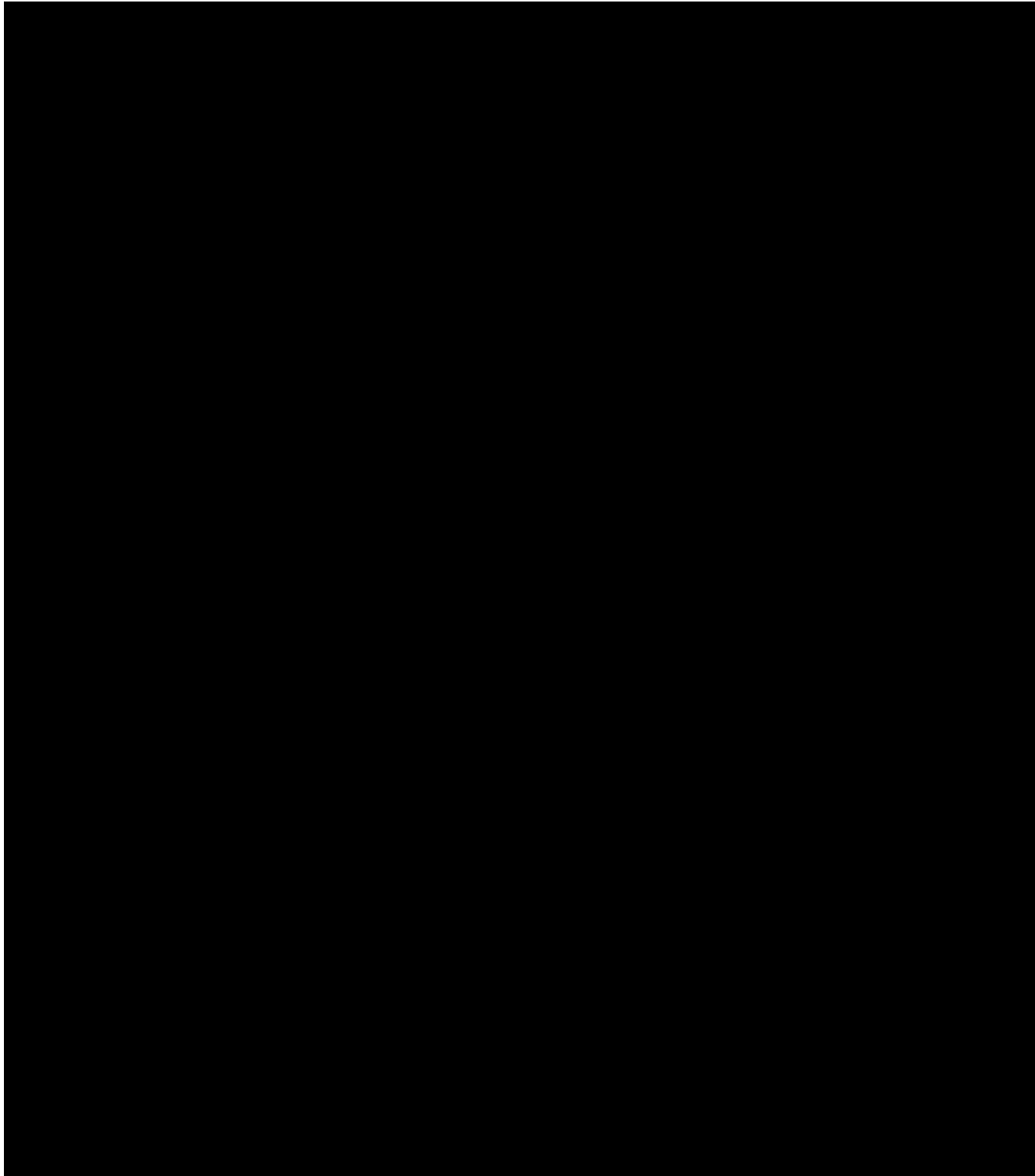
1.8.2.8 Sales Personnel Management



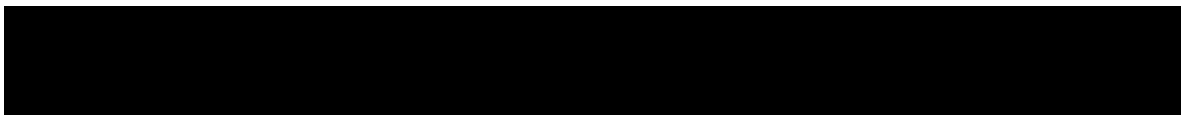
1.8.2.9 Form Designer



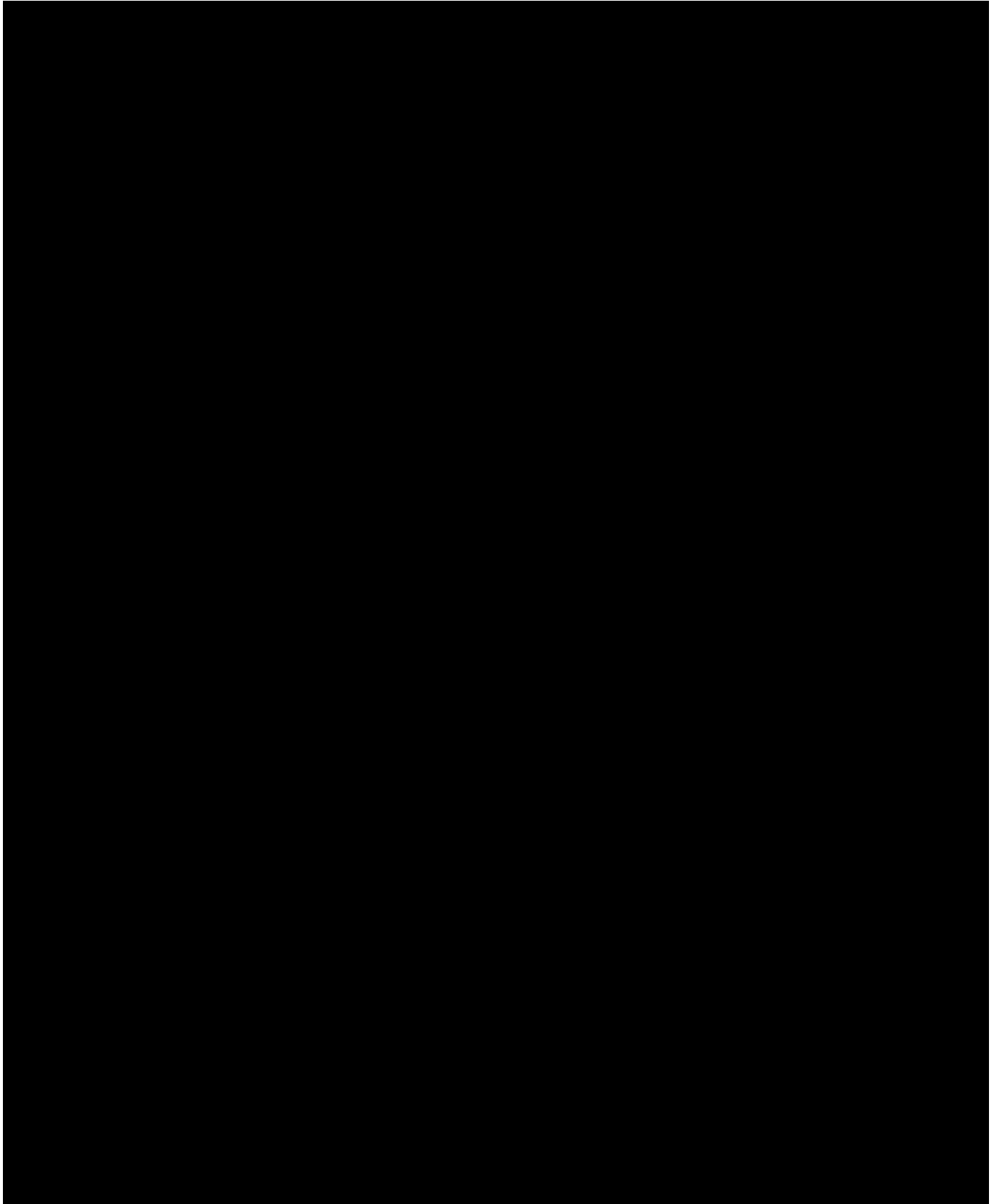


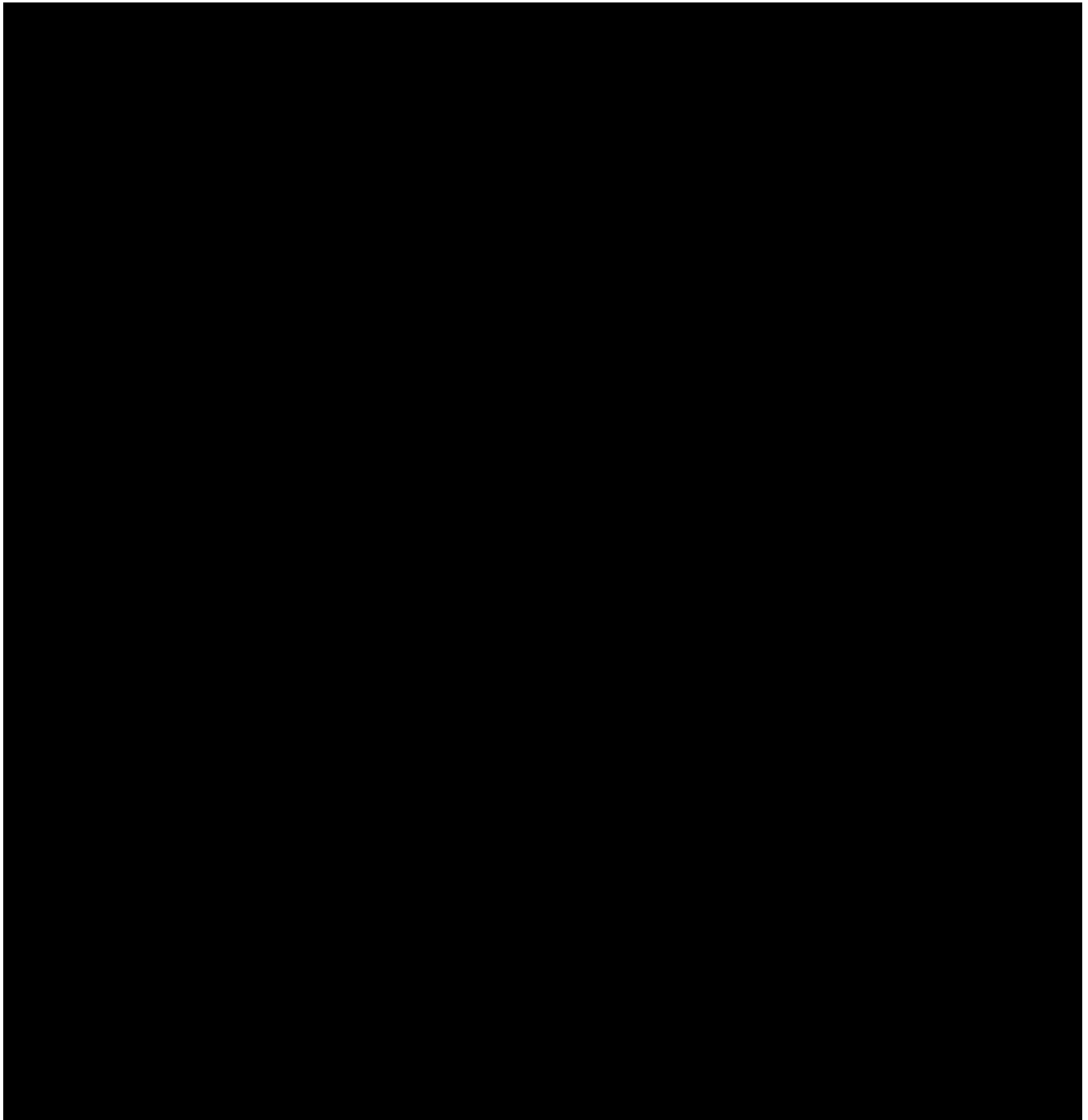


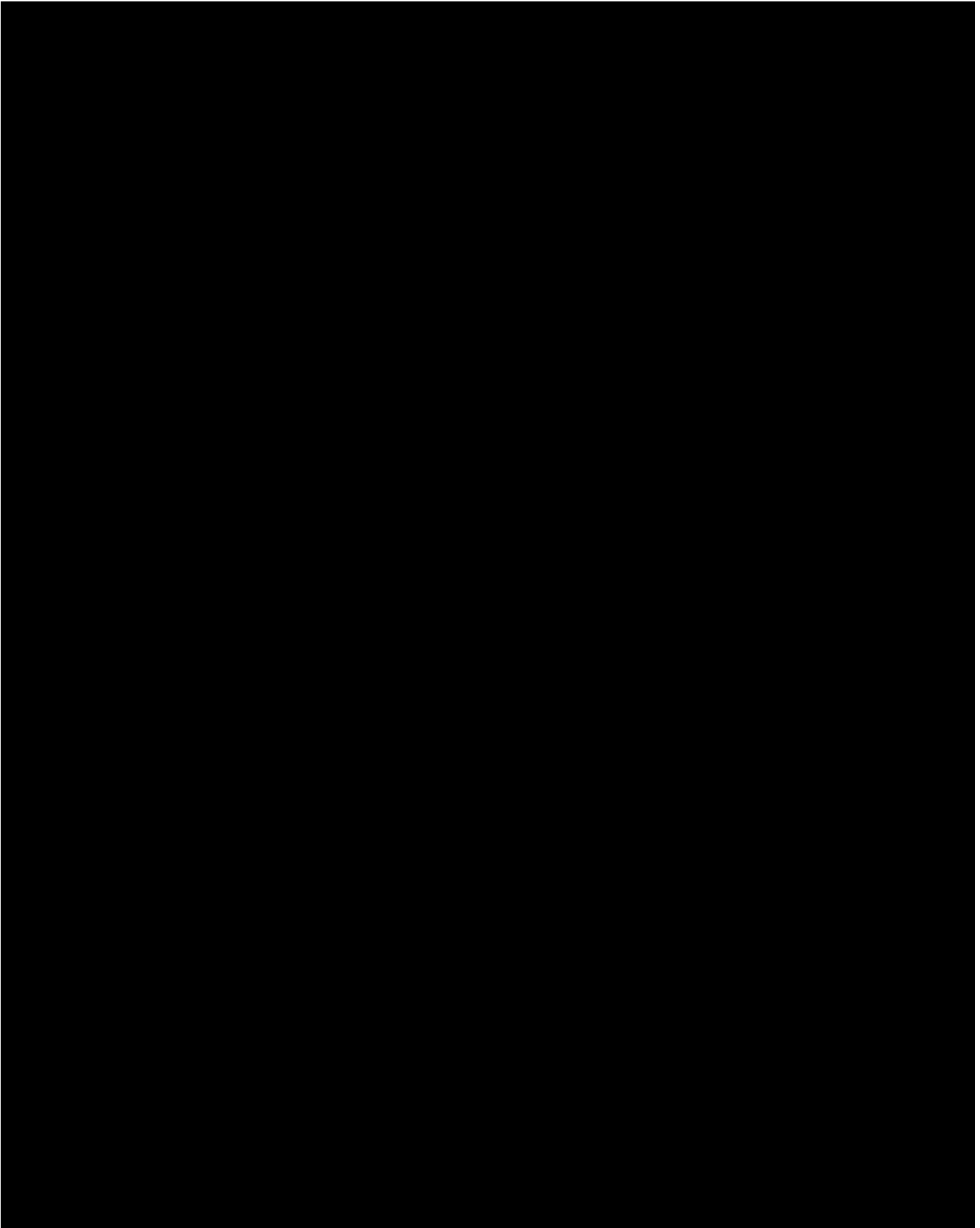
1.8.2.10 Revenue Processing System



1.8.2.10.1 Revenue Recognition and Apportionment







1.8.2.10.2 ngORCA Revenue Apportionment

INIT will adapt the current ORCA revenue apportionment rules to the process described above. The revenue recognition and apportionment will be a daily procedure that will run after the operation day. Revenue for the stored value usage is recognized and apportioned on daily basis. Revenue for the Passes is recognized and apportioned after the product expiry. This applies for both, calendar month based and "active from purchase/first-tap" based passes.

For the Apportionment INIT will apply the rule given in the RFP requirements. For the stored value usage, the calculation procedure is as follows

1. First the system will calculate the total value of the trip (value here is the trip cost without best price calculation or capping). In TriMet project we call this the "base fare"
2. Then the system calculates the value of the trip for individual agencies.
3. With these 2 values the system is able to calculate a coefficient for the apportionment.
4. The coefficient is applied to the real earned revenue (i.e. the value that was reduced from the transit accounts stored value). The real earned revenue depends on transfer rules/discounts and capping.

Below is an example calculation for one days stored value usage.

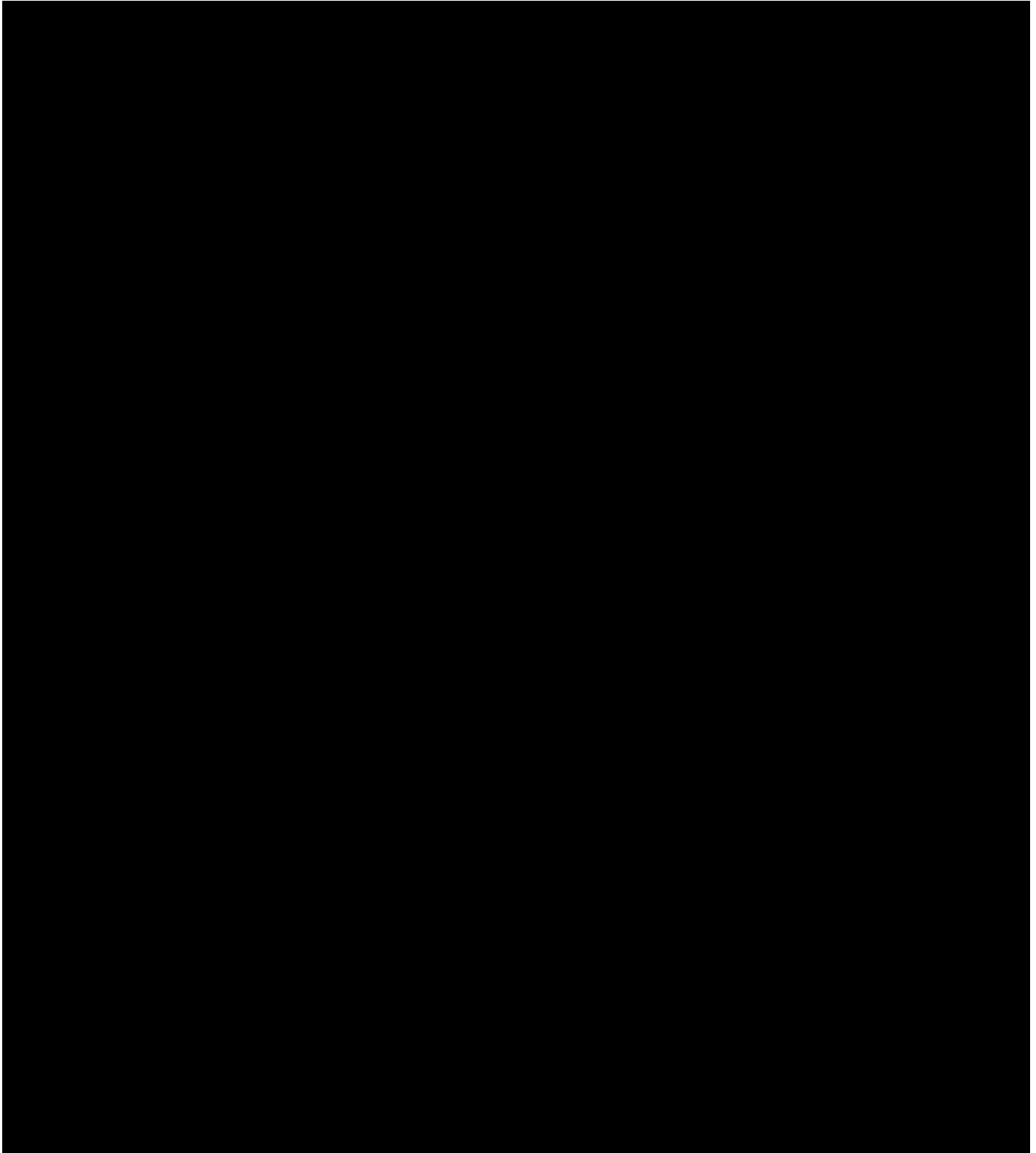
	All	Agency 1	Agency 2	Agency 3
	\$2,00	\$2,00		
	\$1,25	\$1,25		
	\$2,00	\$2,00		
	\$1,25	\$1,25		
	\$3,00		\$3,00	
	\$0,50		\$0,50	
	\$1,00			\$1,00
Trip Value (aka. "base fare") (Without transfer discounts and capping)	\$11,00	\$6,50	\$3,50	\$1,00
Apportionment coefficient ($\text{Value}_{\text{Agency}} / \text{Value}_{\text{All}}$)		0,59	0,32	0,09
Earned Revenue (after applying transfer and Capping rules)	\$8,00			
Apportionment (Earned Revenue * Coefficient)		\$4,73	\$2,55	\$0,73

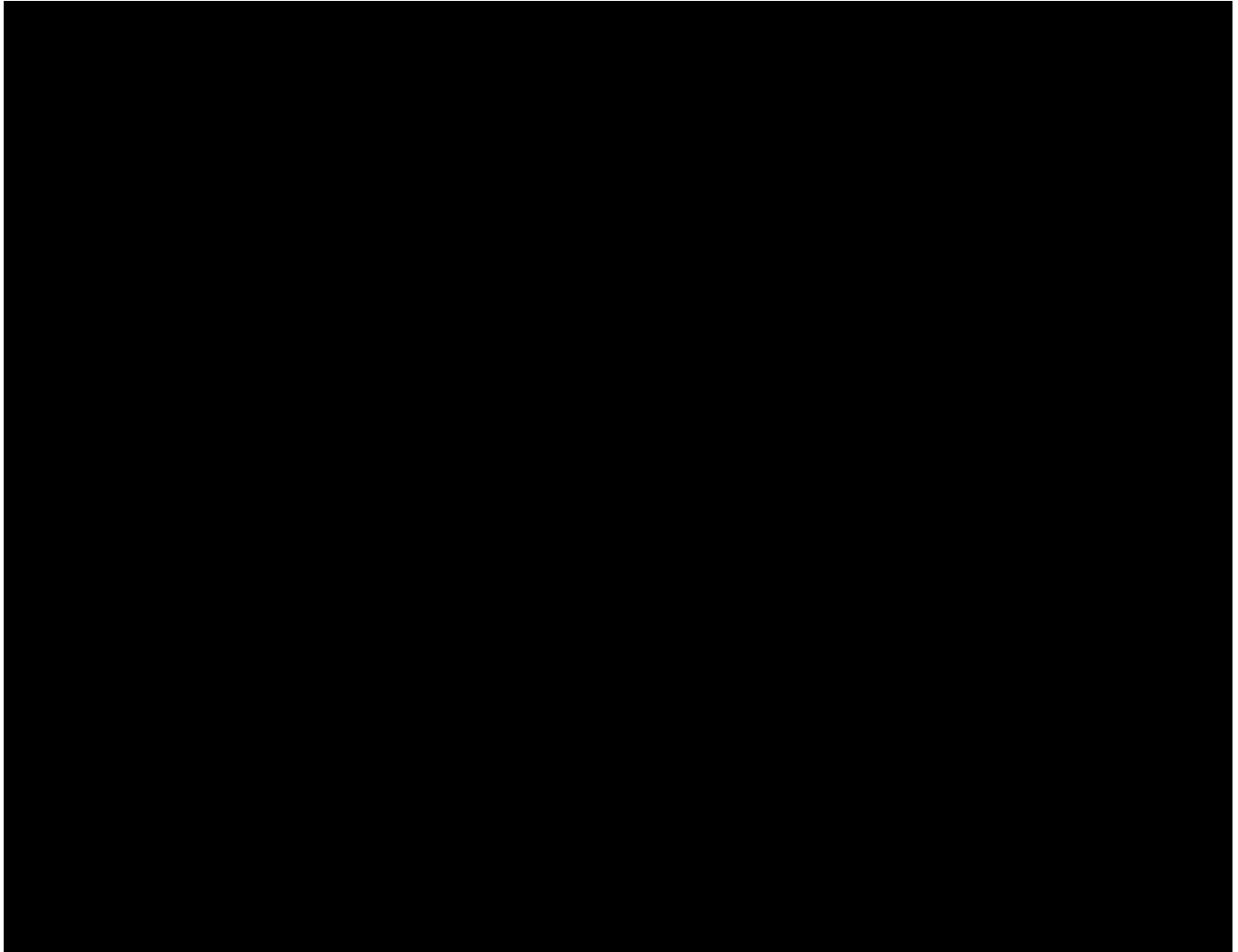
Apportionment for passes is done in a similar manner with the exception that the time window is different (pass validity time instead of an operation day).



The calculation is very similar to the revenue apportionment calculation we are doing for TriMet in Portland.

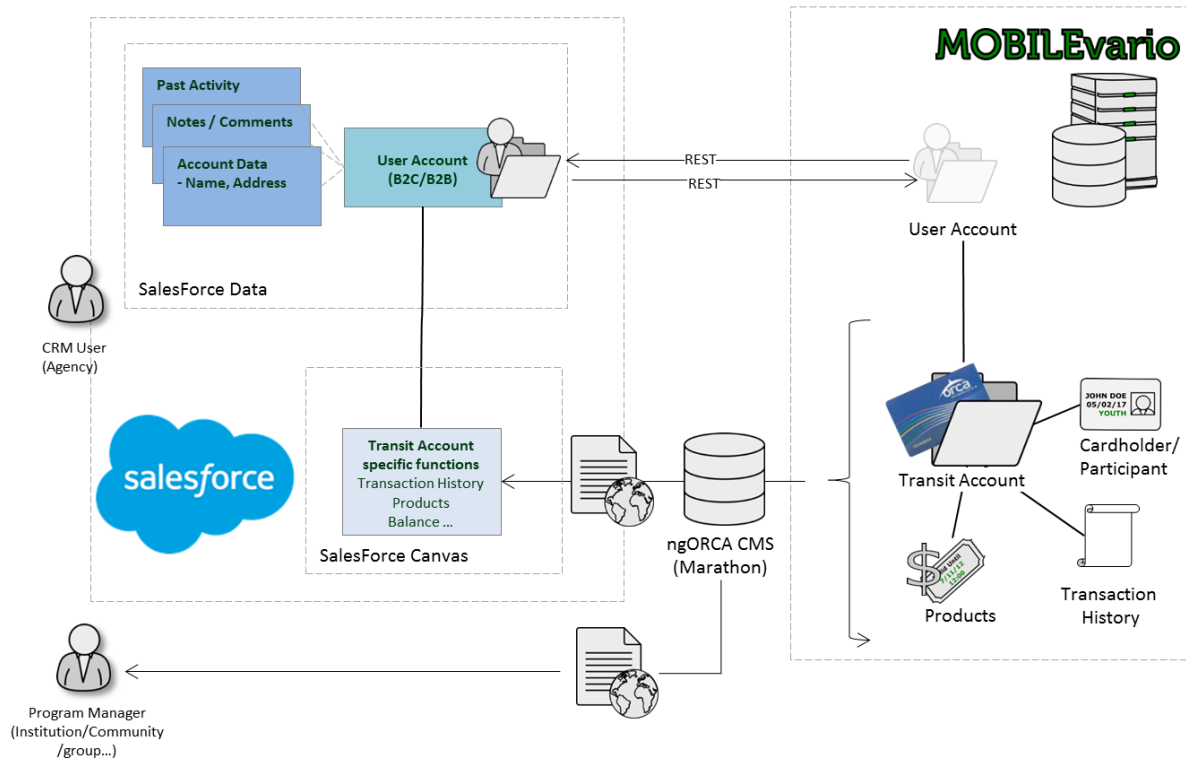
1.8.3 Customer-Service Focused CRM





1.8.3.1 Salesforce Integration Strategy

The diagram below shows the main principle of the integration:



Salesforce is the system of record for user accounts and provides a 360 degree view on the customers (Individual registered card holders, institutions, universities, families, communities etc.). MOBILEvario contains merely a reference to the user account in Salesforce. The agency benefits from the great number of different Salesforce off-the-shelf functionality (B2B functions, B2C functions, call center, activity history etc).

The transit account (or card account) specific functionality is integrated to salesforce in a standard way using the Salesforce Canvas, a framework that allows us to take functionality from the ngORCA web portal and expose them within Salesforce console for the support agents.

Benefits of the overall proposed hybrid integration strategy for ngORCA:

- ✓ Fully compliant with ngORCA requirements, specifically around customer 360 and end to end transactions management
- ✓ High level of code reuse - Less changes needed when new features are added, easier to maintain and manage
- ✓ Maximal flexibility – avoid double implementation of new features and system extensions
- ✓ The hybrid integration strategy enforces seamless user experience across the system
- ✓ Minimize Salesforce license costs around data storage. The proposed hybrid integration strategy avoids having large data volume of transaction level accounts data on Salesforce platform

The integration subtasks are described in the text below.

1.8.3.1.1 System of Record

Salesforce is the system of record for user accounts, including all account types (individual card holder, group, family, community, company, institution etc.). MOBILEvario stores the Salesforce account number/reference but not any of the personal data.

1.8.3.1.2 Customer Account types

The CRM application will have the ability to define and categorize customer accounts by type (e.g. individual, family, university, non-profit, business, corporation, elementary school). There is no distinct "User Account" and "Institution Account" like in the current version of MOBILEvario. Depending on the role of the user, the User Account can be provided the rights and functionality of an institution user or other kind of group user (e.g. "customer account type).

1.8.3.1.3 CRM User Management

Access rights for the CRM users are defined with the Salesforce Standard Profiles and Roles for all standard as well as custom objects. The CRM users are synchronized with the system users defined in Azure AD and MOBILEvario.

1.8.3.1.4 Salesforce API

Both Salesforce and MOBILEvario provide a REST API for user account management. Given that Salesforce is the system of record for the user accounts, the MOBILEvario API will serve as a proxy for the Salesforce APIs. System client developers or the agency can decide whether a certain client should use the Salesforce API directly or via MOBILEvario APIs. INIT will provide only the basic CRM functionality needed for the fare collection operation via the MOBILEvario APIs. Advanced functions need access to the Salesforce API. It is also possible to manage the CRM API access with the Azure API gateway. Details of the API routing is a subject for the system specification phase.

1.8.3.1.5 Connection to AIM

The CRM will be integrated with AIM (Jira) for creation of incidents. Persistent have already experience on Salesforce Jira integration and the details will be clarified during the system design phase.

1.8.3.1.6 Transit account functions

The functions related to transit (card) accounts are provided in a Salesforce Canvas. The content is generated by the Customer Website (Marathon CRM). If there are certain functions that are

needed to integrate to Salesforce either with Salesforce Standard or custom objects, this can be done via Salesforce REST APIs.

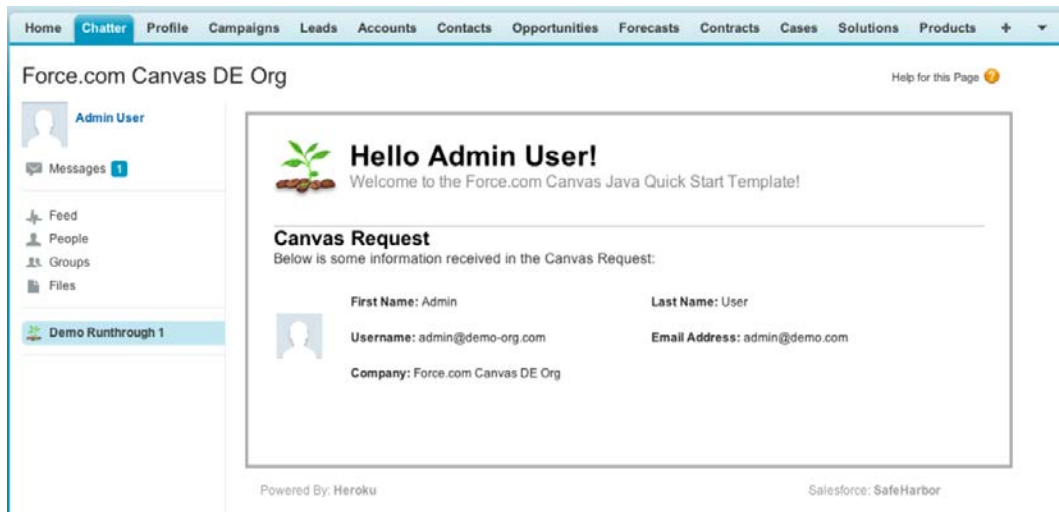
1.8.3.1.7 Funding source data (PCI)

Funding source data (credit card data) is stored in the payment gateway PCI certified storage and accessed via the gateway payment services (payment page). The payment page is integrated into a Salesforce canvas to provide a seamless user experience.

1.8.3.1.8 Bulk Transactions for Partners / Participant Management

Institutions (Universities, Corporations) or other kind of groups or communities that are given the bulk participant management rights (participant is the transit account holder belonging to some certain program, community or institution) are enabled to manage the accounts via bulk uploads (e.g. CSV data uploads). This same functionality is provided to the CRM users in a Salesforce canvas. This ensures coherent user experience, maximal code re-use, and change flexibility.

Salesforce canvas provides a way to integrate existing web content and functionality to the Salesforce CRM user interface. The institutional users will see a "box", page or frame on the ngORCA website which provides a function to upload the CSV file. This same box/frame will be available on the CRM website for the CRM users. In the example Below, the content in the gray frame is pulled from a external webservice and integrated to Salesforce with a Canvas.



More information on the Canvas integration can be found on the Salesforce documentation at https://developer.salesforce.com/docs/atlas.en-us.platform_connect.meta/platform_connect/canvas_framework_intro.htm

1.8.3.1.9 Interface to Financial Management System

Interface to the Accounts Receivable (AR) goes via MOBILEvario APIs. Whenever an institution makes a card order over the web portal, or CRM user makes an order on the Salesforce UI, this generates a corresponding entry in the Accounting AR either using Salesforce Canvas or trigger based updates calling REST APIs.

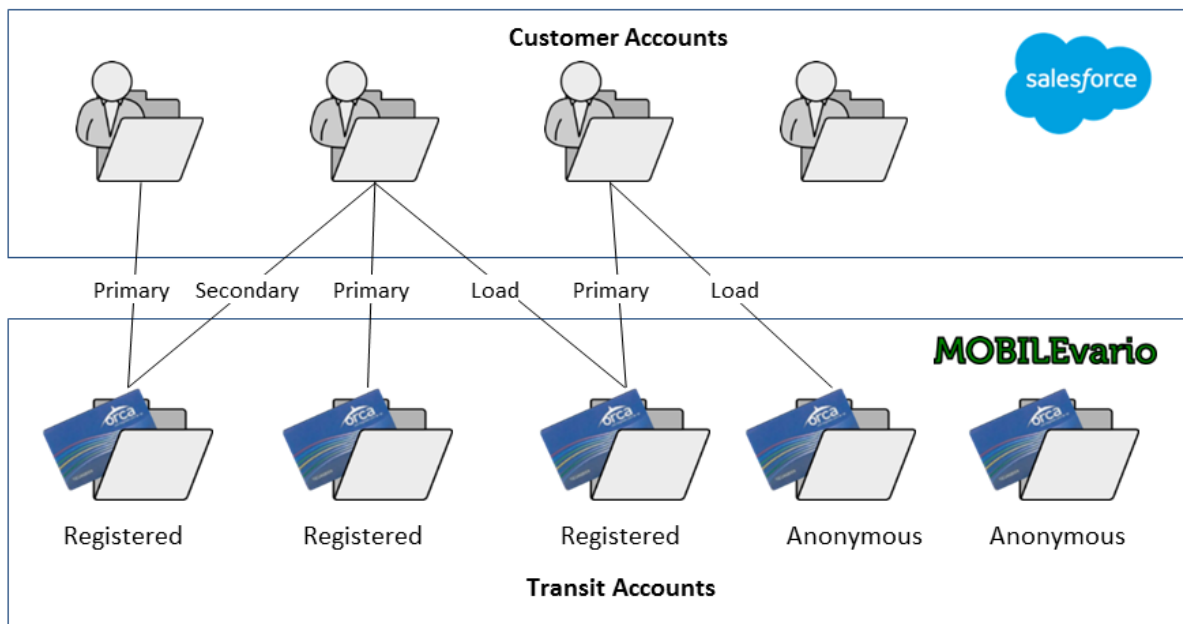
Both CRM users and website users (with appropriate user account types) can list the invoices for a certain user account.

1.8.3.1.10 Fare Media Management

Fare Media Management application is integrated into the CRM as a canvas or a separate Salesforce Web Tab.

1.8.3.1.11 Account Architecture

The Following diagram shows the account architecture:



Customer accounts are managed in Salesforce and they can be associated with none to many transit accounts. Transit accounts that are managed in MOBILEvario can be associated with none to many user accounts.

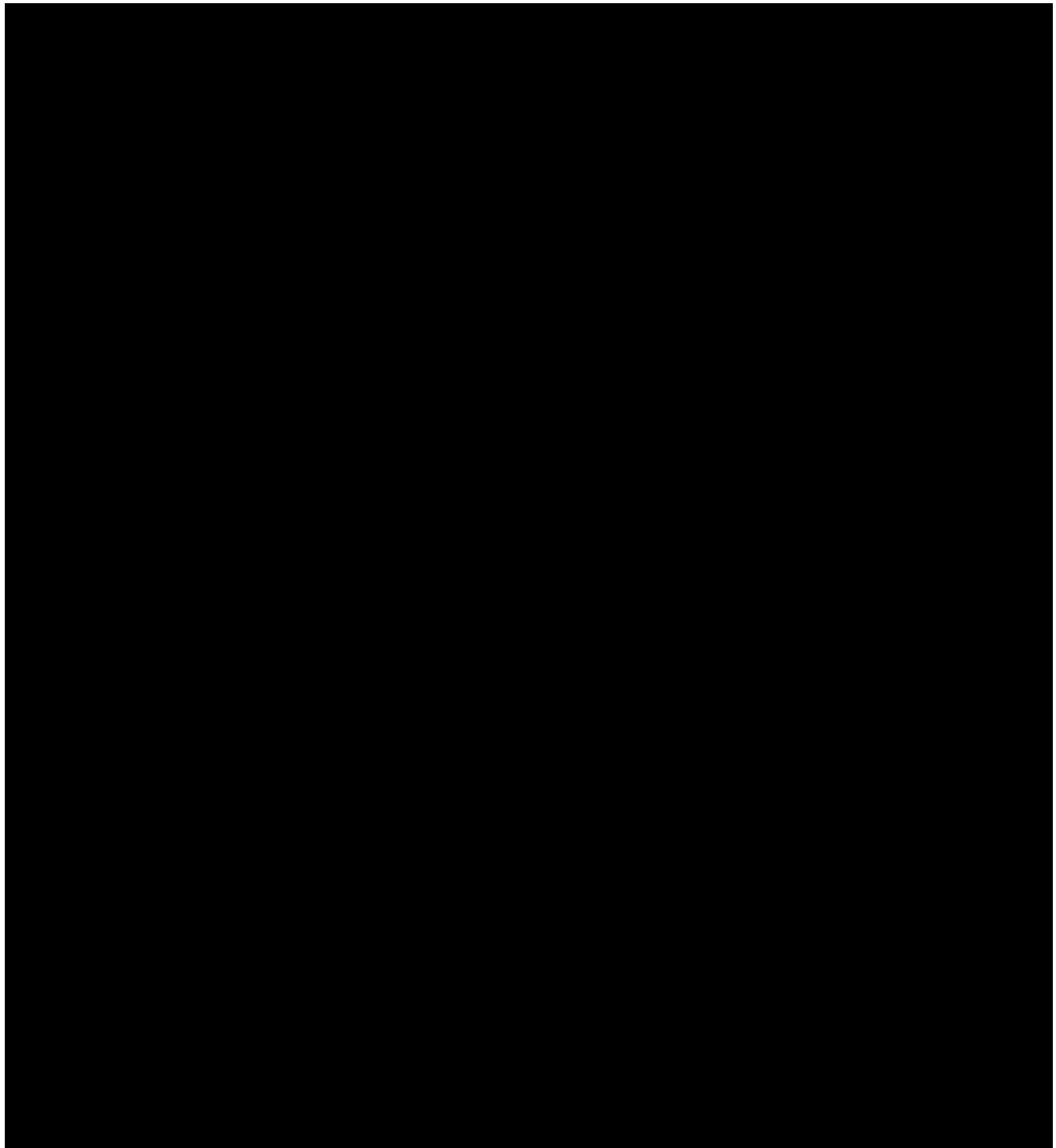
TransitAccount data is managed with the TransitAccount API provided by MOBILEvario. Customer account management API is provided by the Salesforce APIs. Both registered and unregistered (anonymous) transit accounts can be managed with the APIs.

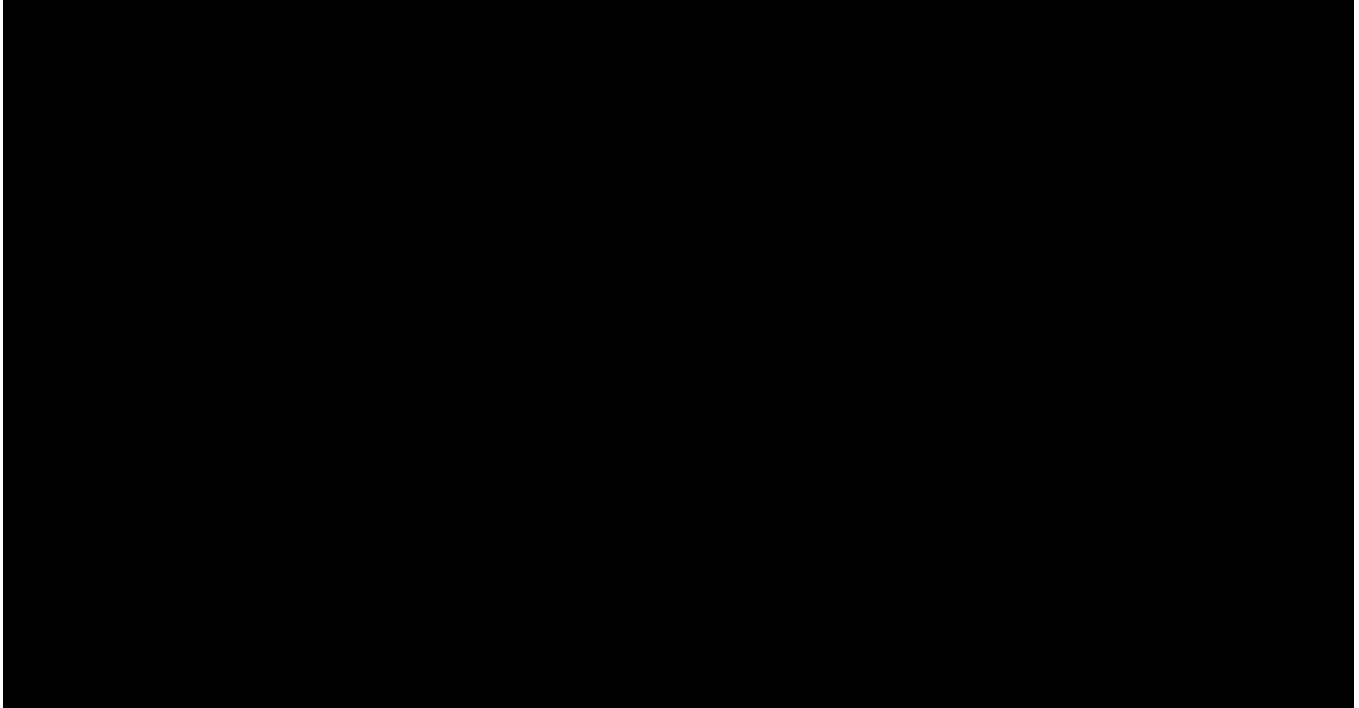


1.8.3.1.12 Version Changes

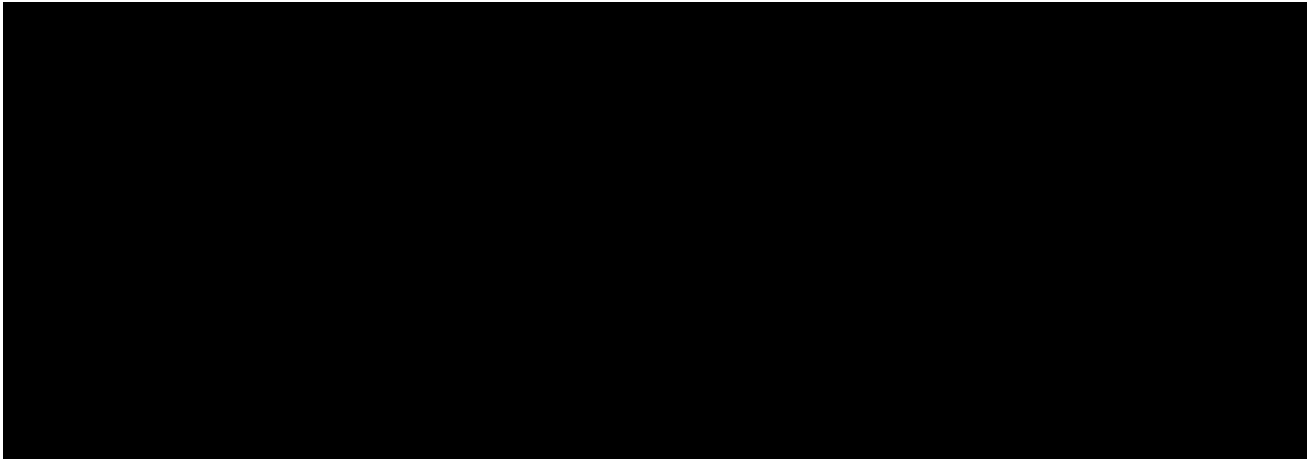
When Salesforce adds new functionality, they change the API version. The old API versions are still available. It is then the client systems decision to migrate into the new API version. When new versions are available, the migration to it needs to be evaluated on case-by-case basis.

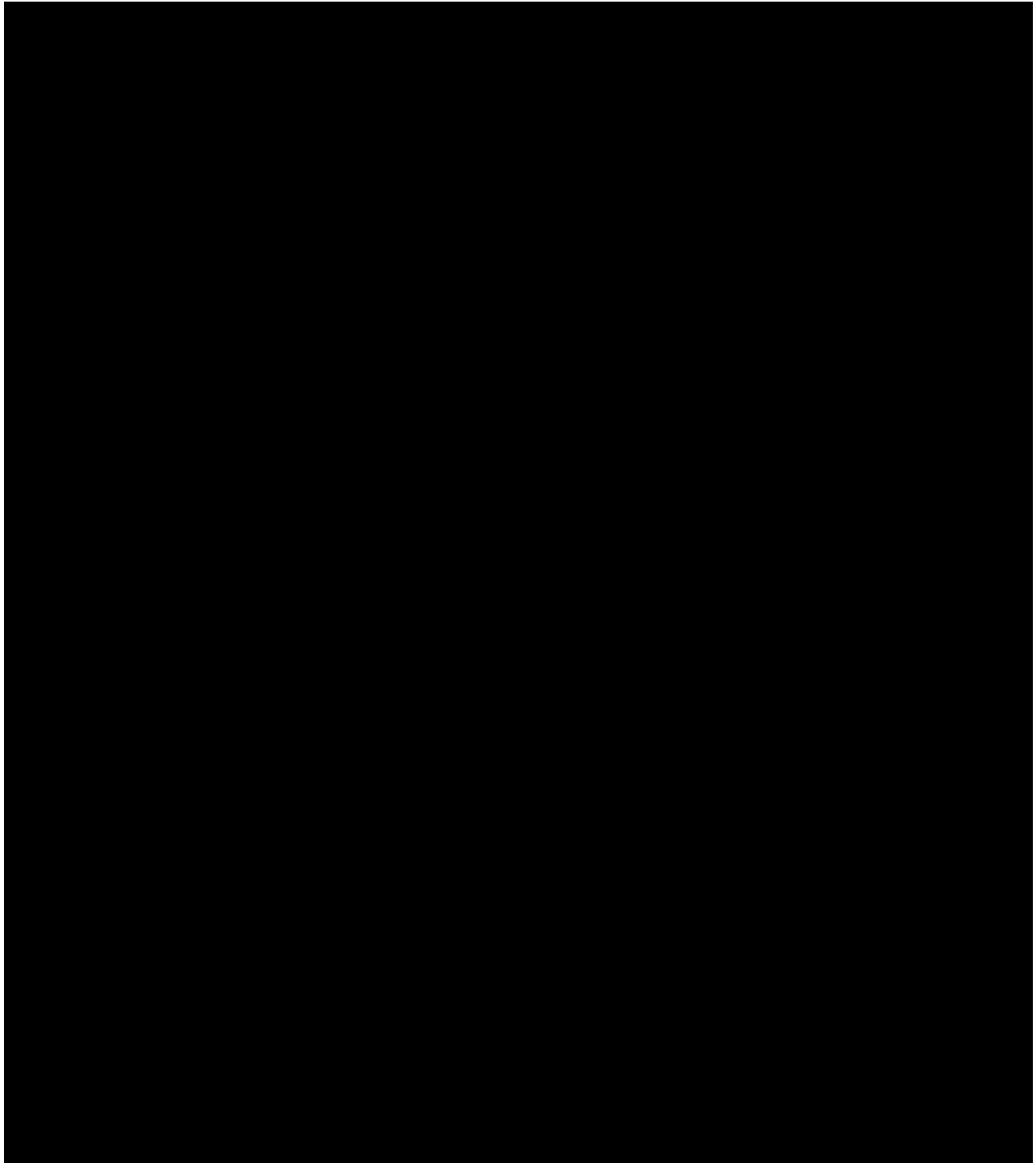
1.8.4 Asset Incident Management (AIM) Application



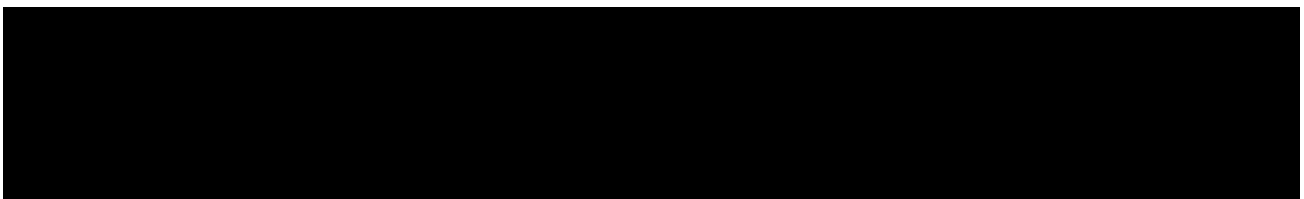


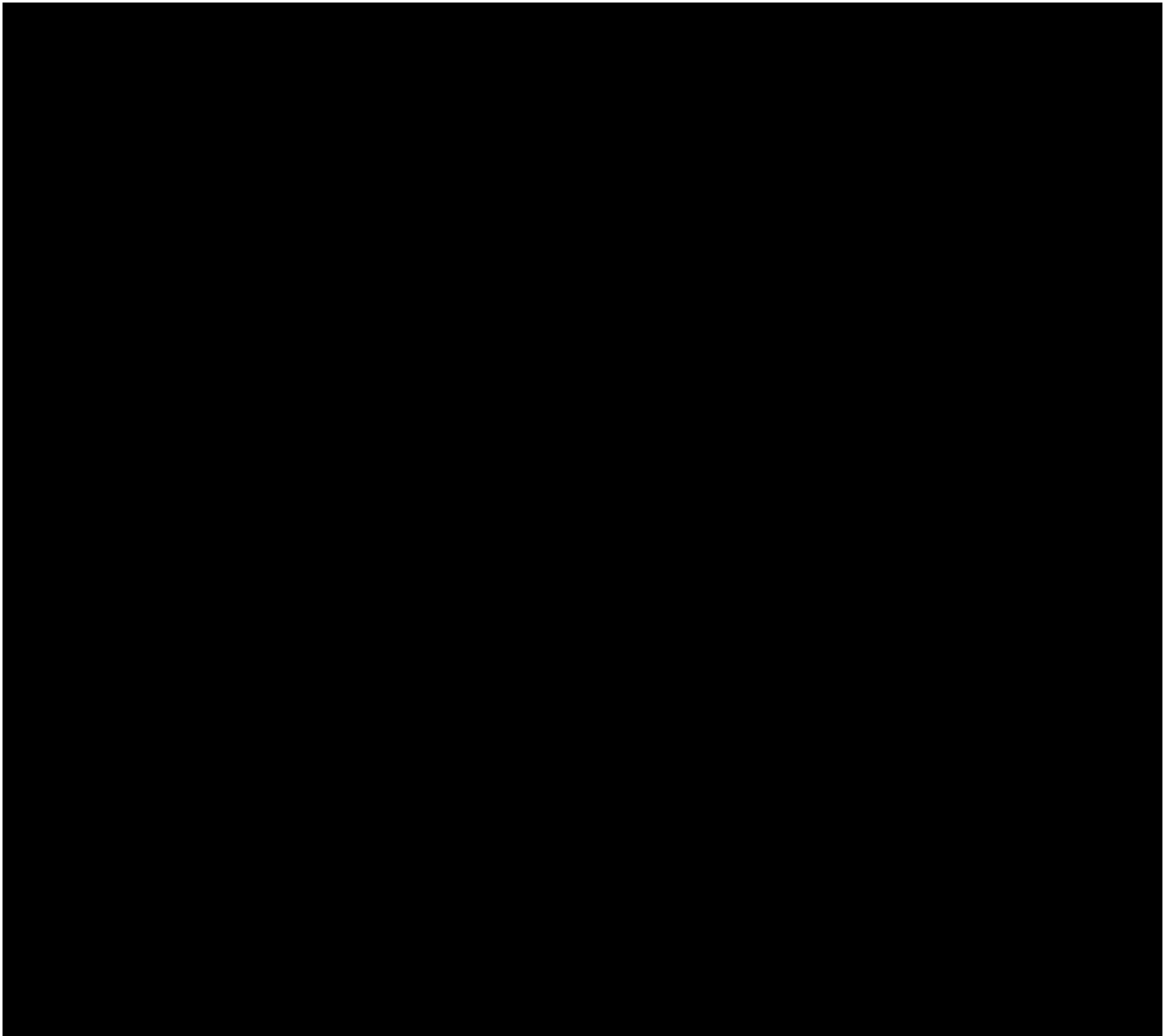
1.8.4.1 Incident Management (JIRA)

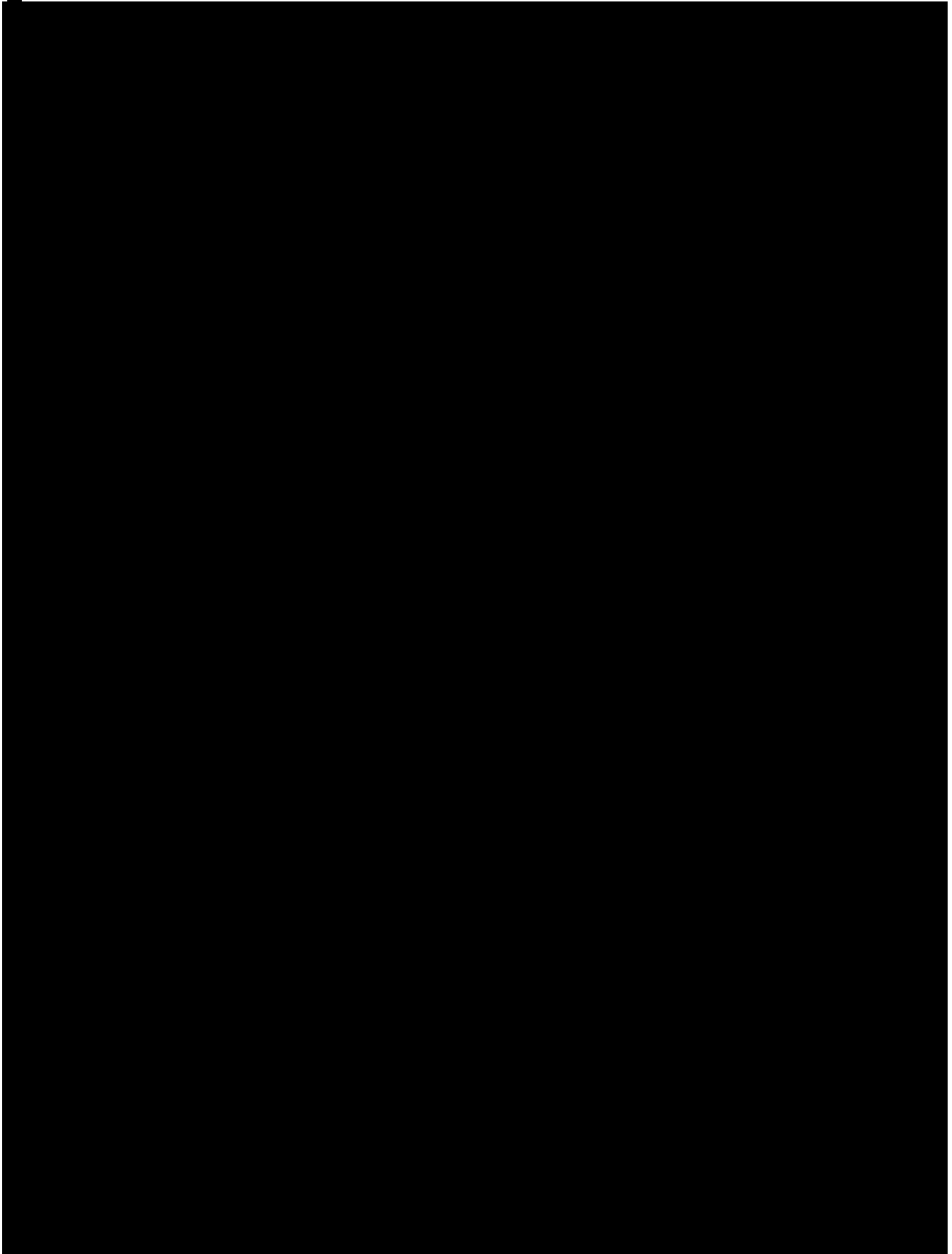




1.8.4.2 Asset Management (Insight)

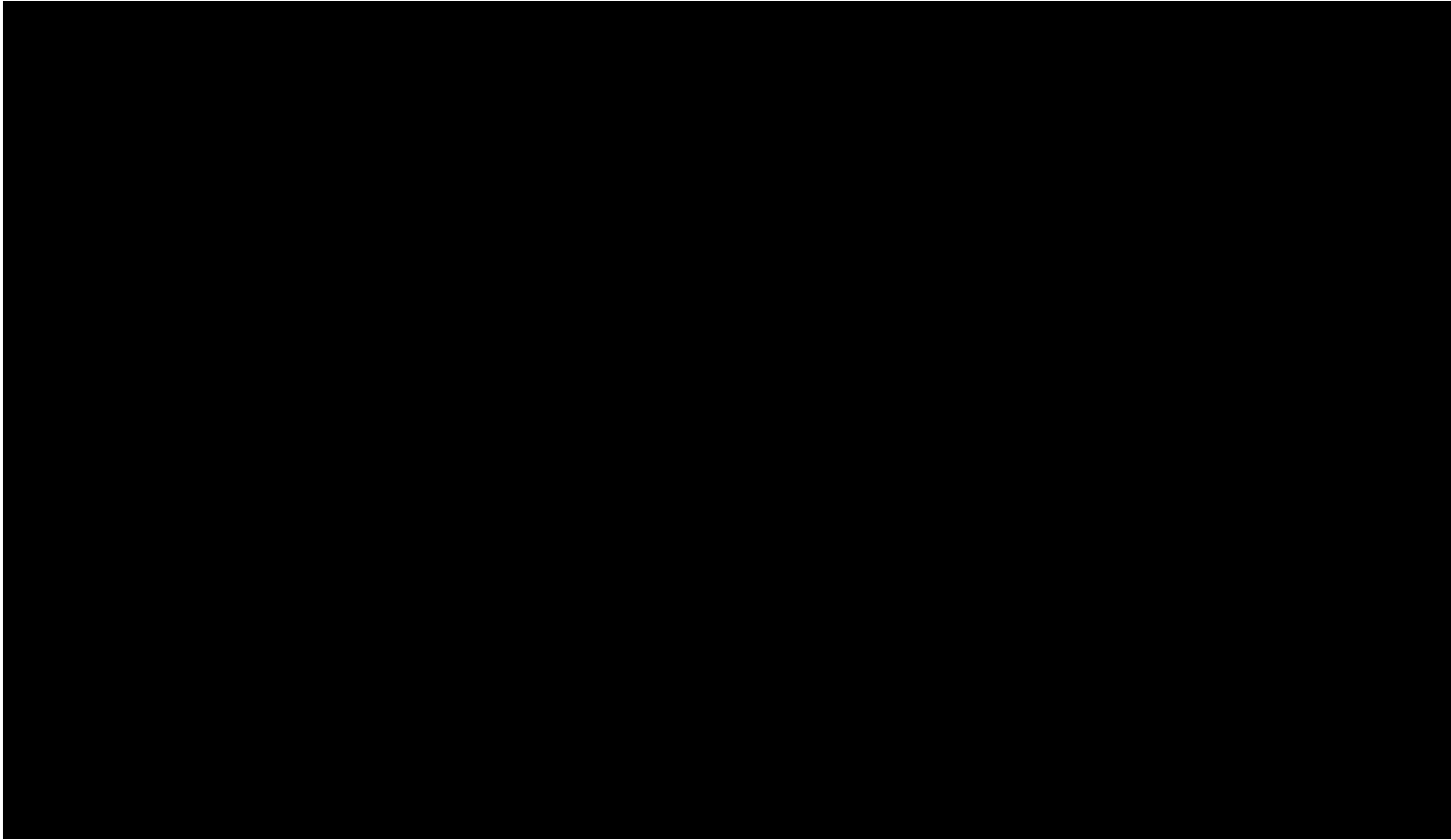




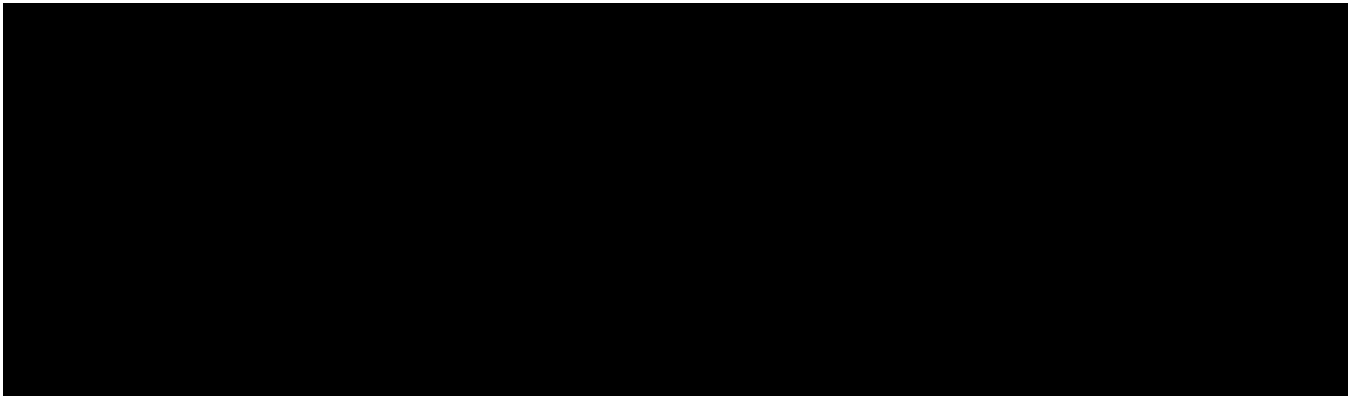


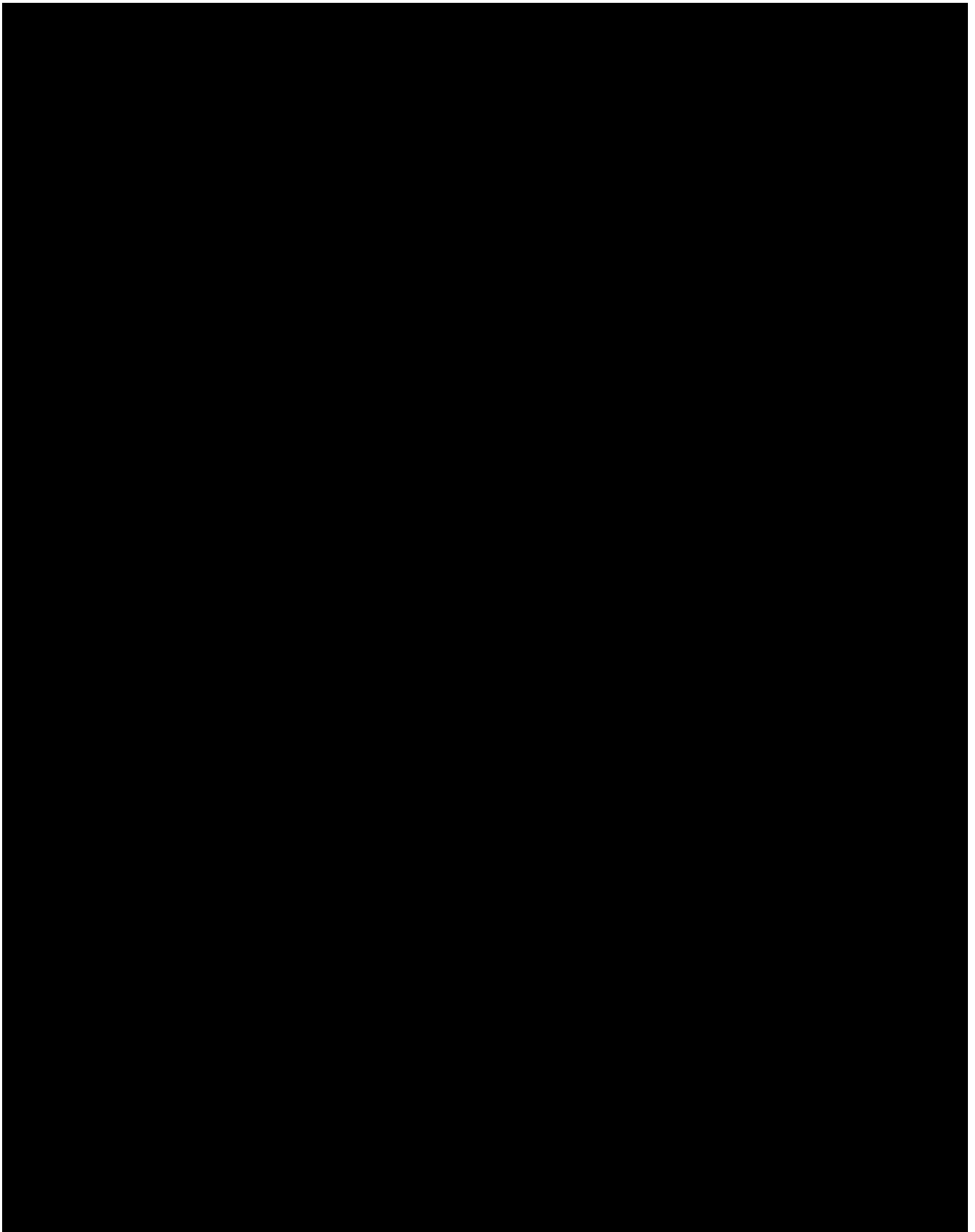


1.8.5 System Manager - Automatic System Monitoring

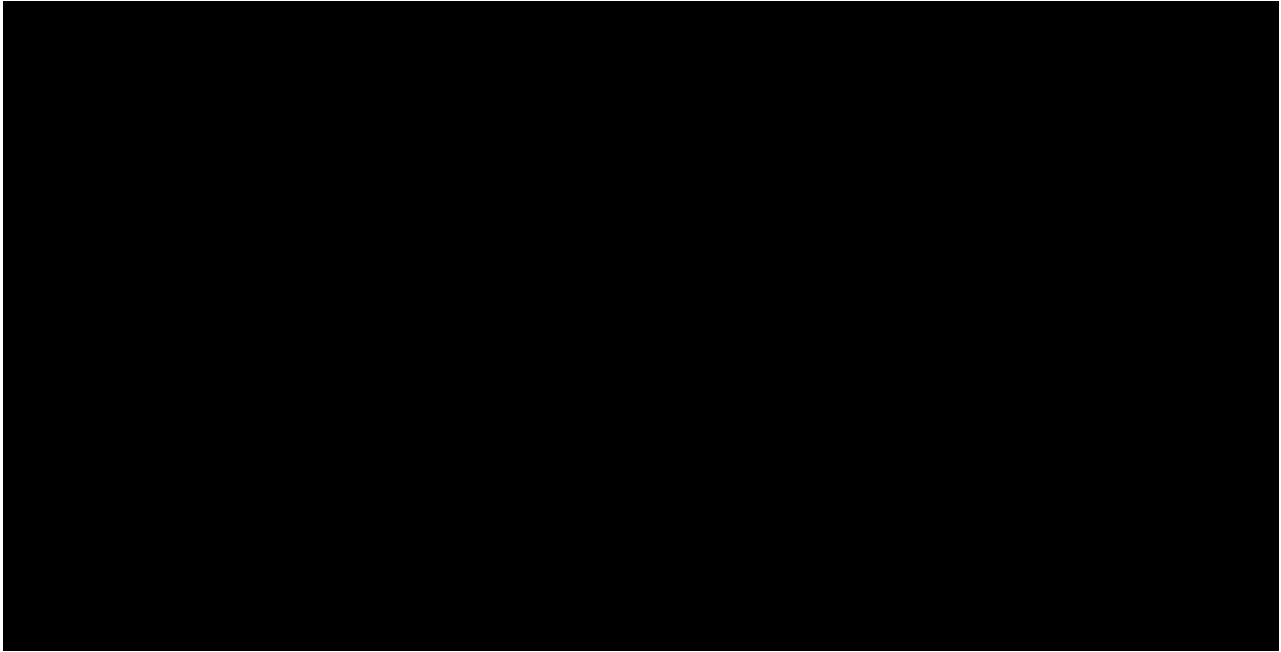


1.8.5.1 Dashboard

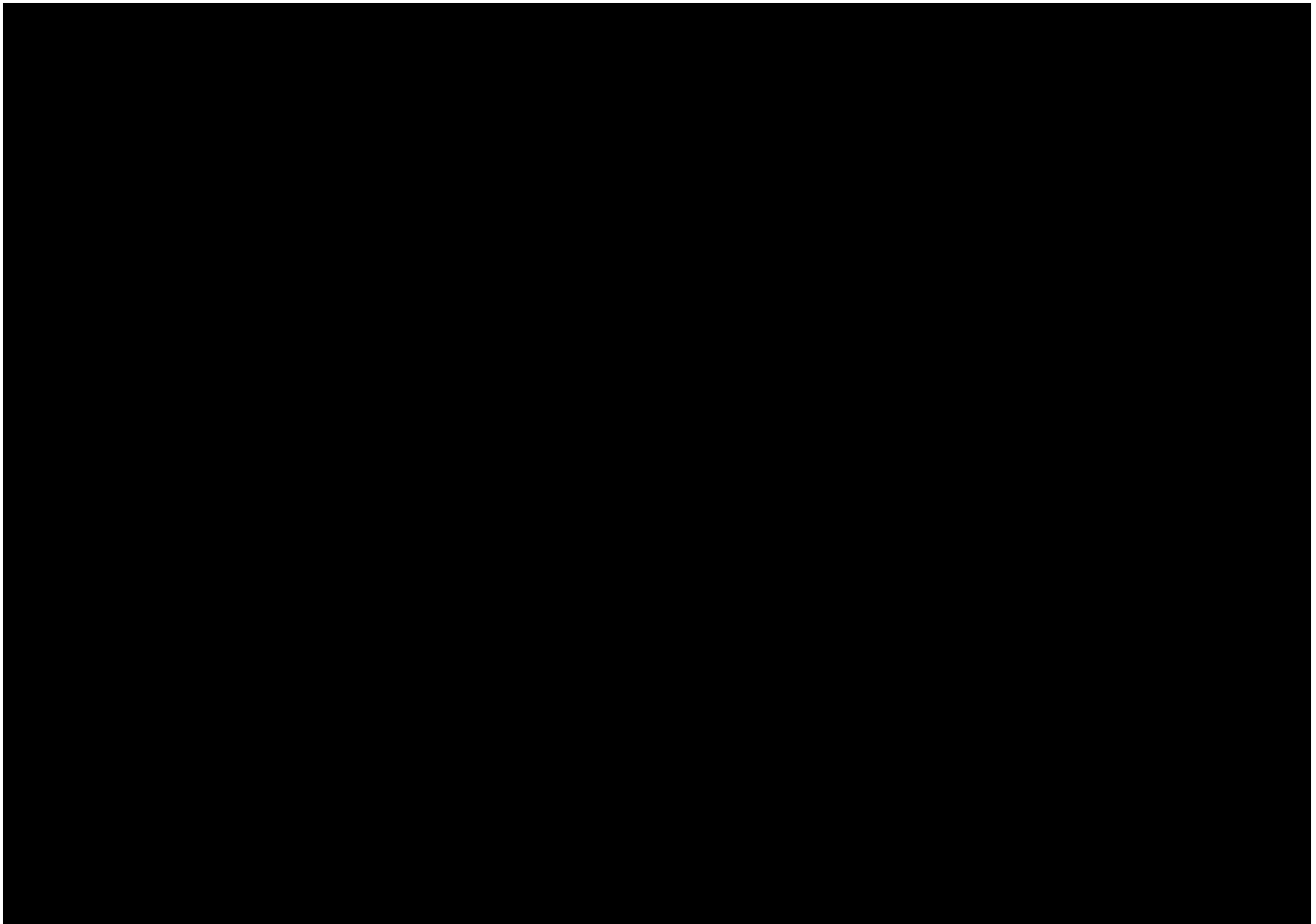


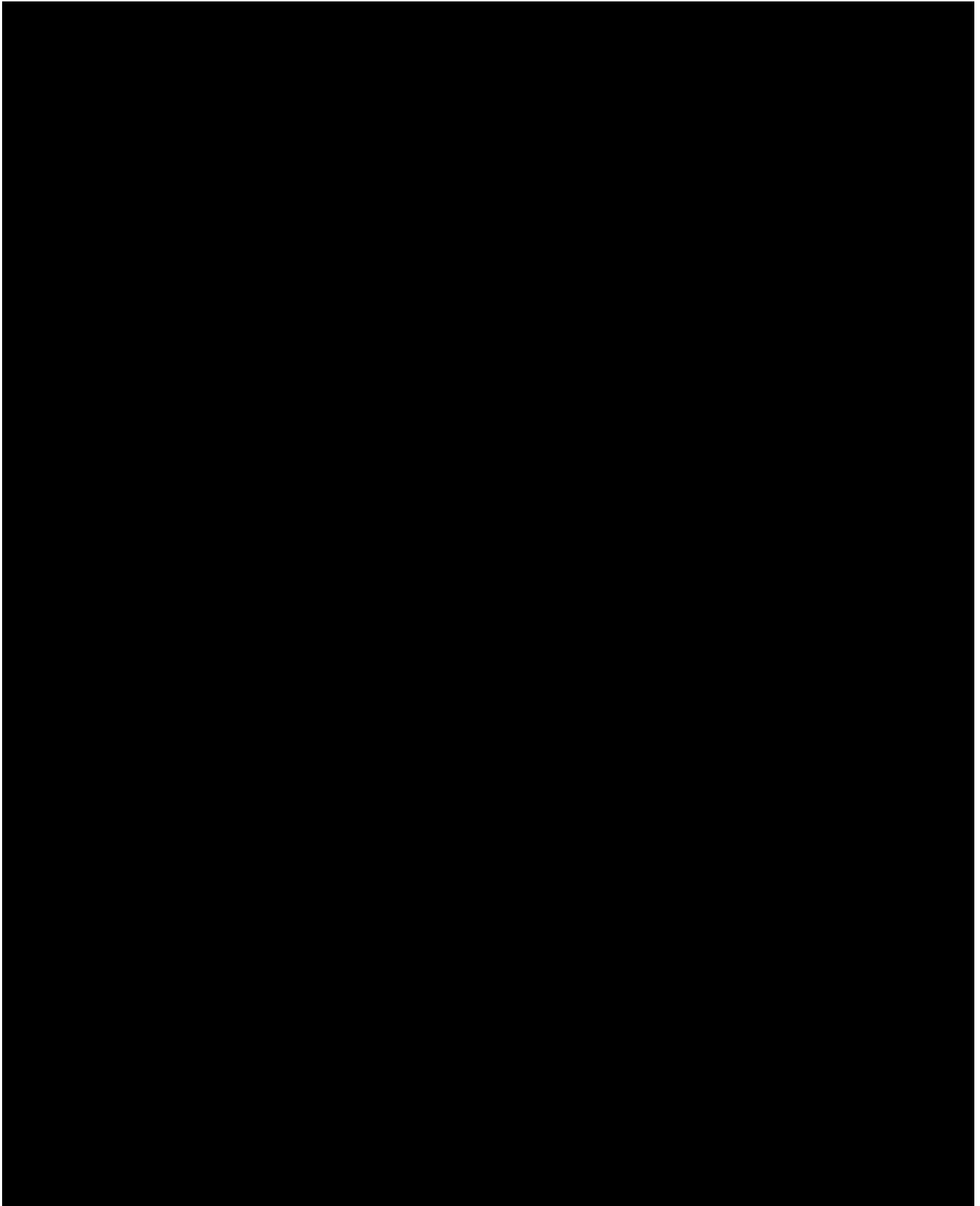


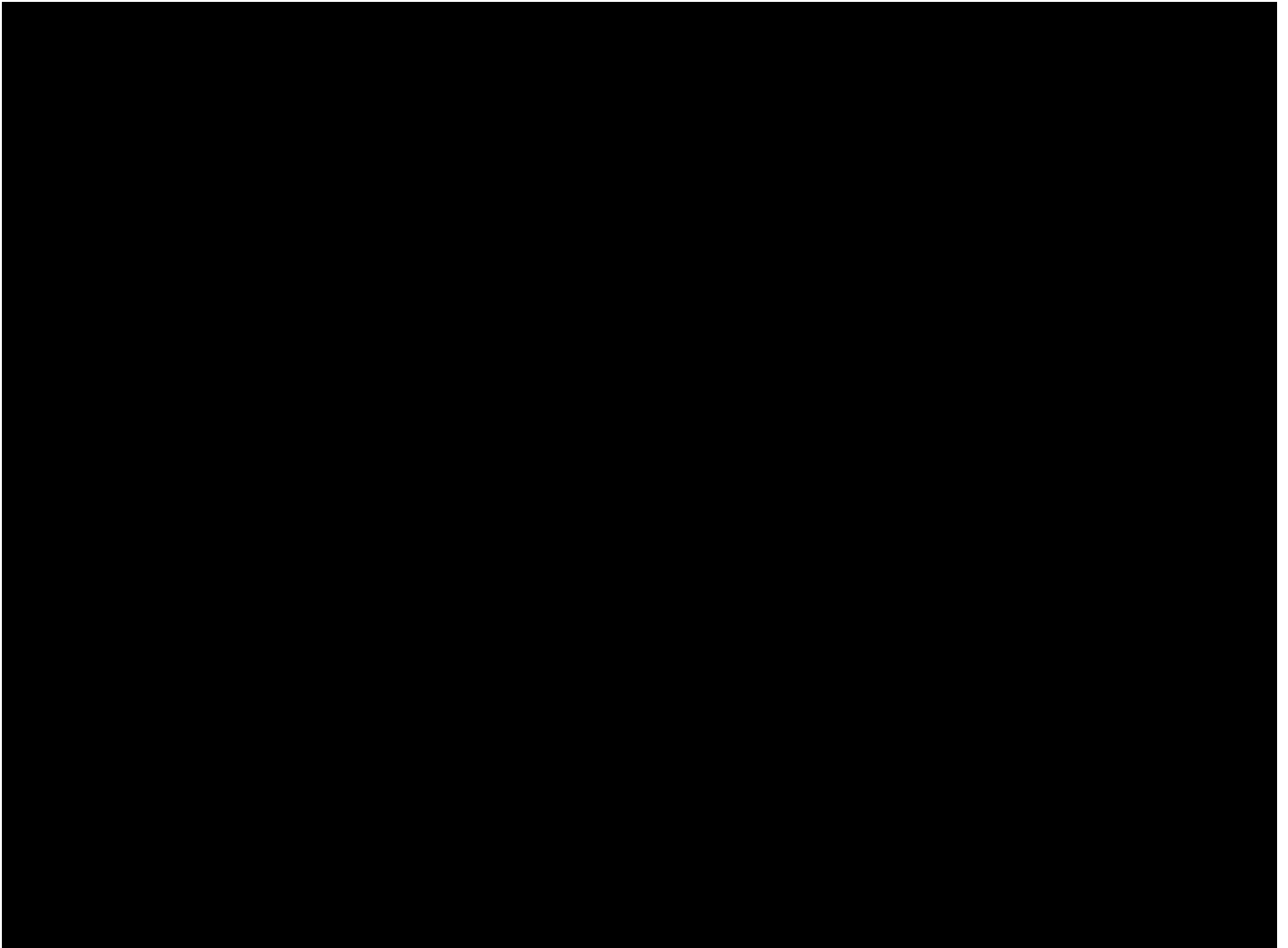
1.8.5.2 Automatic alerts



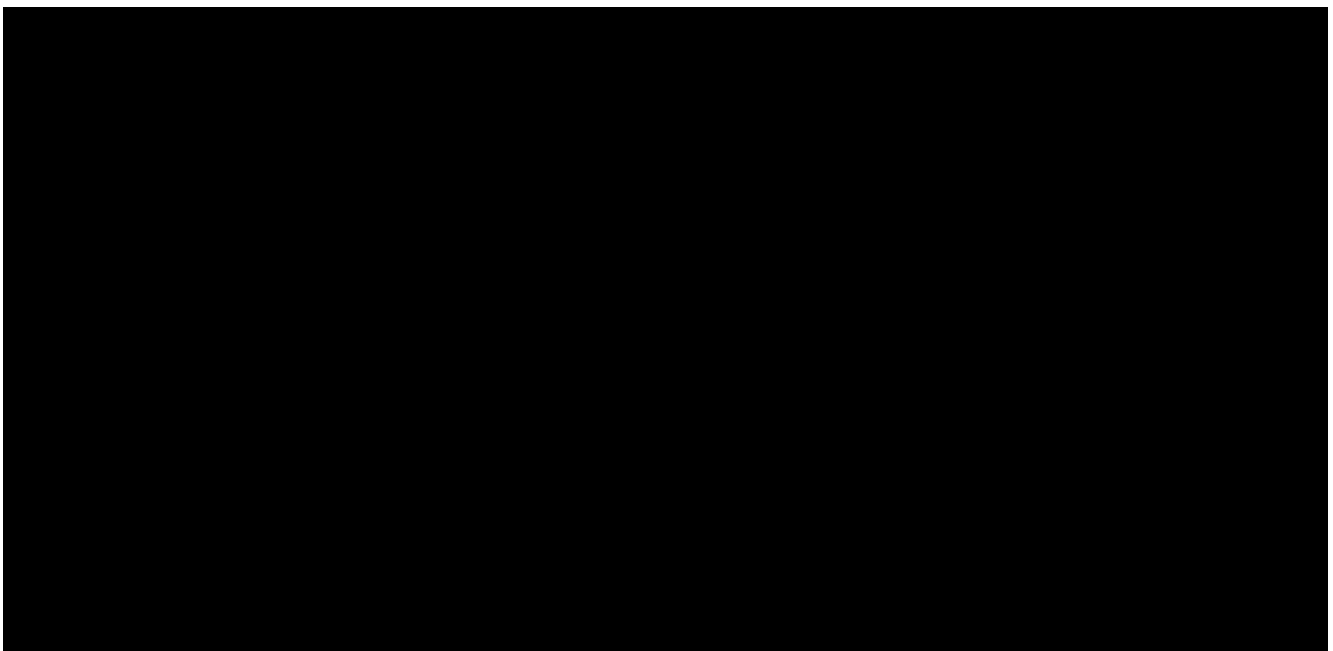
1.8.5.3 Components & Groups View

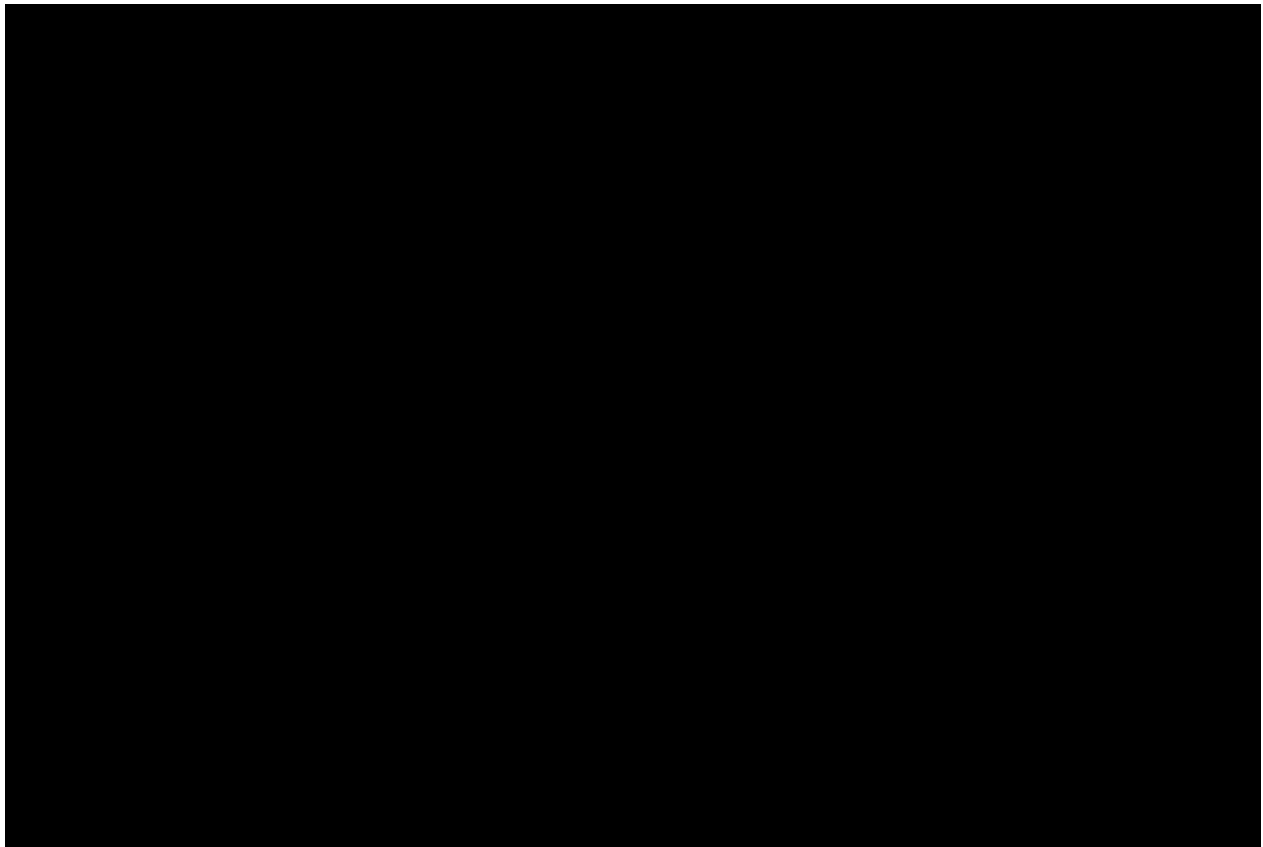


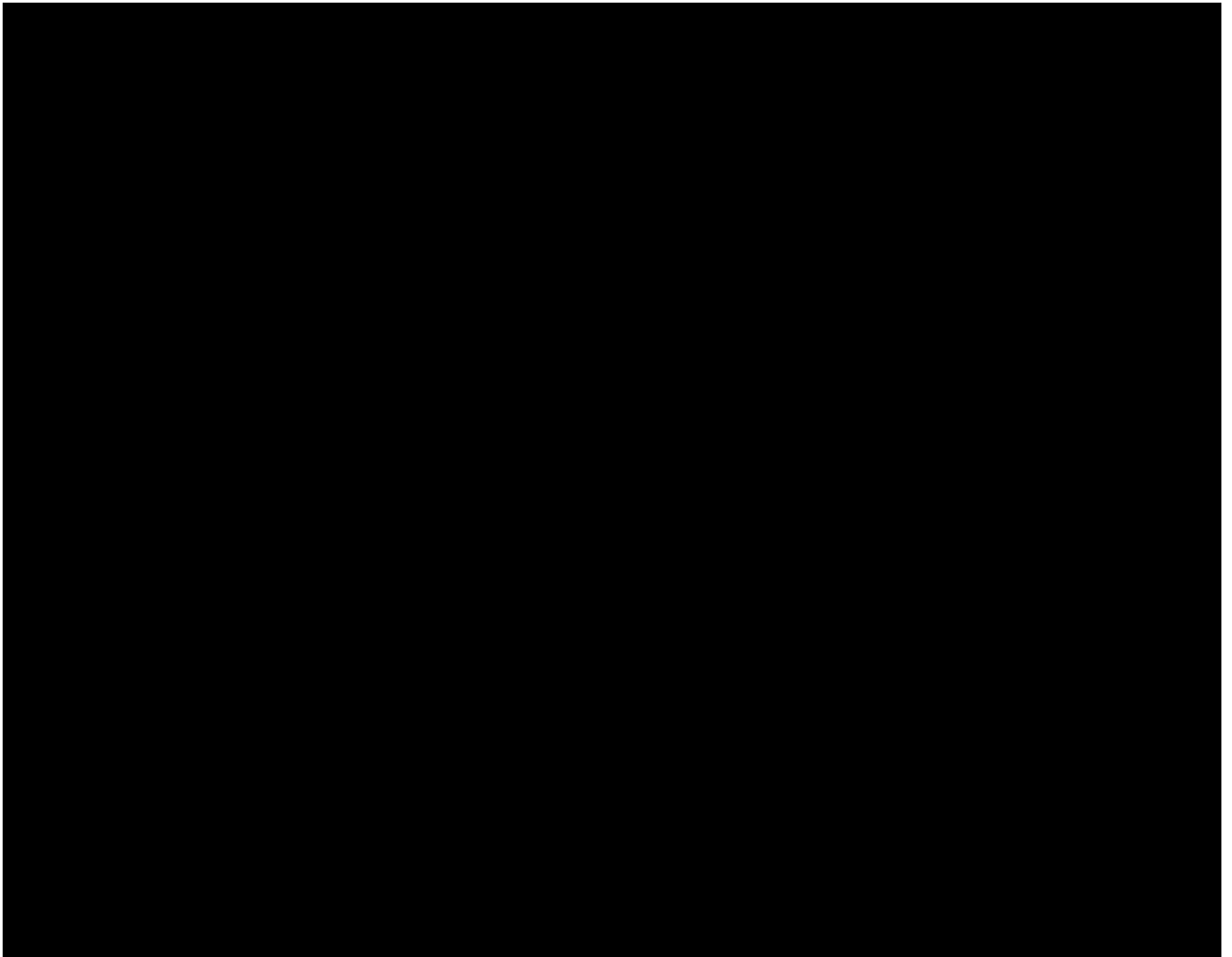




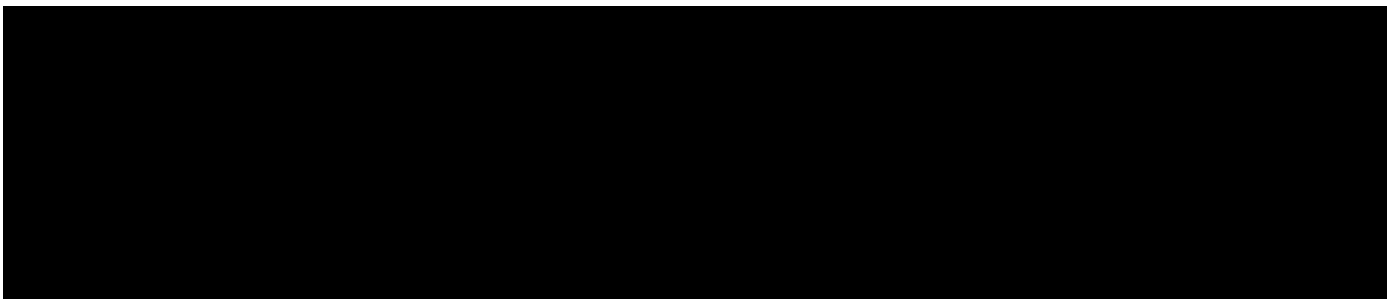
1.8.5.4 MOBILEguard

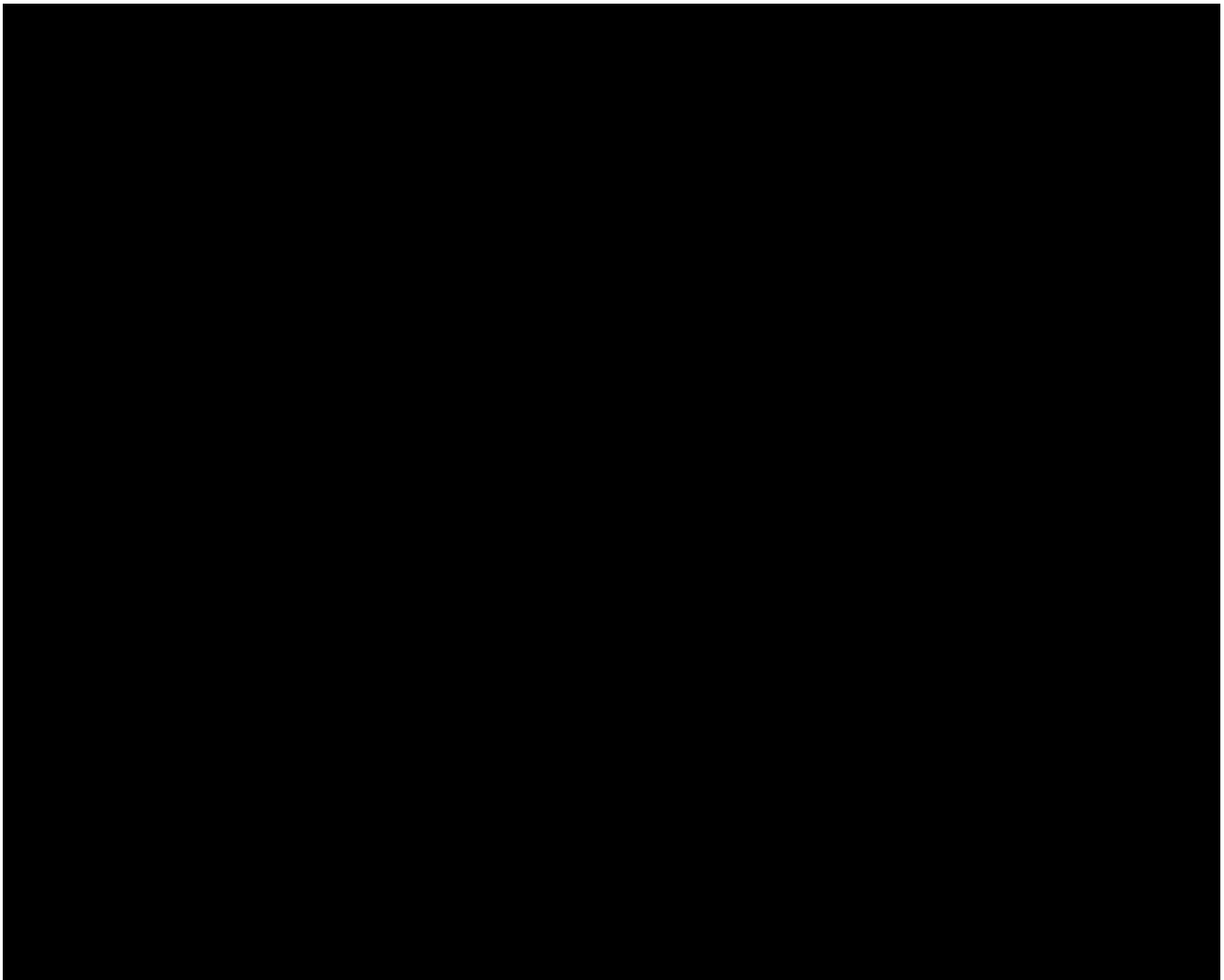






1.8.6 Fare Media Management Application





1.8.6.1 Cards Lifecycle

A cards lifecycle can be split into two parts. The first one includes the physical storage of the cards at different storage locations and other places until they are issued to a customer, while the second part of a cards life describes the actual usage of the card to pay fares after it was issued. Both parts need to be looked at separately but are always connected by the card itself. This chapter describes the first part of the cards lifecycle, the physical handling and storage. The proceeding chapter describes the second part of the lifecycle after a card is issued.

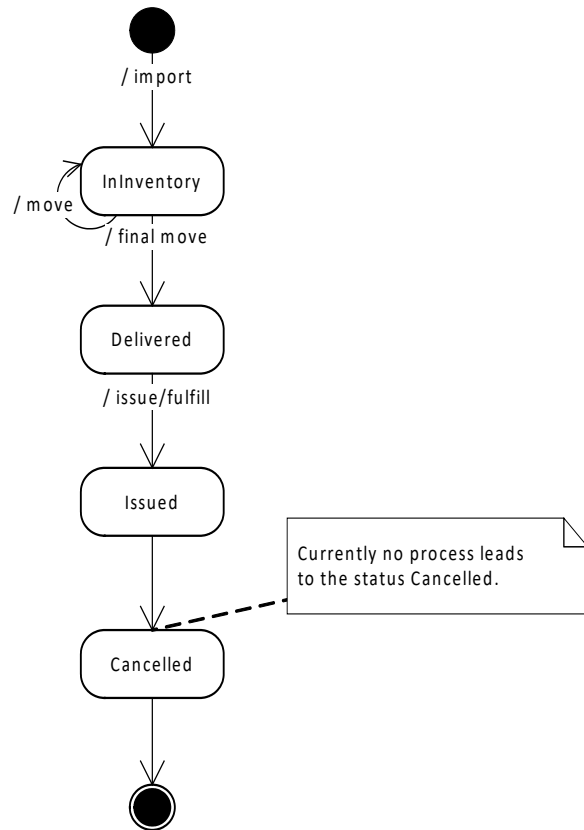
Before cards can be issued, they will go through different organizational processes. This includes receiving the cards from the manufacturer, putting them into a warehouse or other storage facility, and of course moving them to an office, City Hall, or retailer for issuing. The MOBILEvario Card Inventory Management implements those process steps. The Card Inventory Management is used to track the physical cards in the system and their current storage locations until they are finally issued to a customer or used to fulfill an institutional order.

As described above, the first step is to receive cards from the manufacturer. To make the card known to the system and to be able to issue them later, they need to be imported into the system. A user can add cards to the system by importing the inventory list provided by the manufacturer for a batch or box of cards. The import requires the selection of a storage location to which the cards initially will be assigned to. After the cards are imported to one storage location, they can be moved between different storage locations in the Card Inventory Management System. During this period, the status of the cards is *InInventory*.

InInventory is one of four inventory related status a card can have in the system. Inventory status describe the physical status of a card, but not if a card is active or not. The four inventory statuses are as follows:

Status	Description
InInventory	The card is currently in storage in a facility of the agency, e.g. a warehouse. Cards with this status cannot be issued.
Delivered	The card is intended to be used/issued soon and was moved/send to e.g. a retail store chain or a City Hall. Only cards with this status can be issued or used during fulfillment.
Issued	The card was issued to a customer.
Cancelled	The card was destroyed or similar. This status is currently not used by the system.

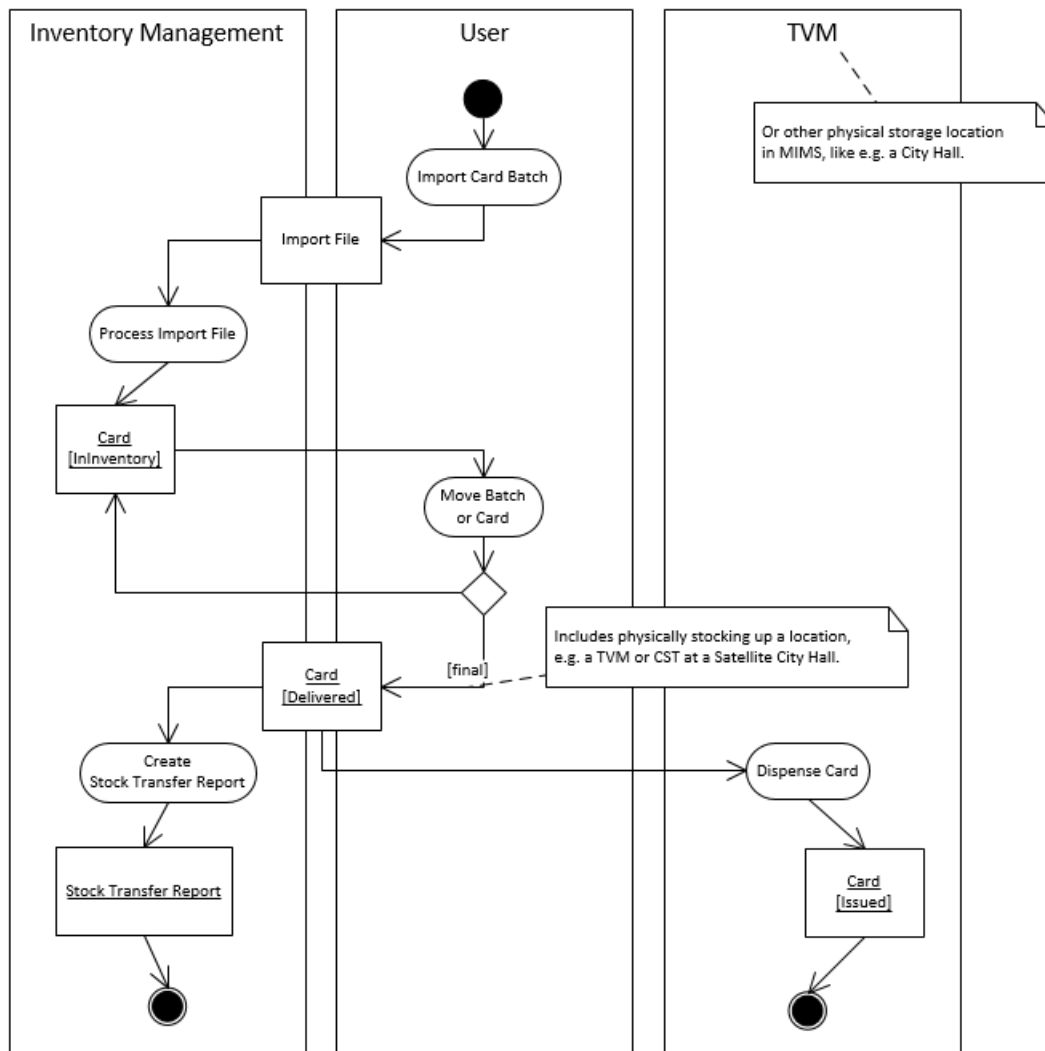
During the different processes the card will go through, the inventory status will be changed by the system automatically. The following flow chart illustrates how the different statuses are related to each other:



Card Inventory Status Flow Chart

The following sections describe the steps that lead to each status in more detail.

The sample activity diagram below shows the lifecycle of a card that will be dispensed by a TVM. From an inventory management perspective, the TVM can be any storage location from which a card should be issued. This means that this process is the same for TVMs, retail store chains, and for institutional orders.



1.8.6.2 Evaluation of COTS fare media management

Given the ORCA Agencies' stated desire for a COTS FMM,– INIT evaluated different COTS solutions available on the market. It turned out that almost all of the fare media management applications are dedicated for Bank/Credit card issuing/Management and have little to do with closed loop card management suitable for transit agencies. The most suitable available solution for this purpose is the solution provided by Production Solutions Inc. However, based on technical and cost analysis, INIT's recommendation is to use the internal MOBILEvario module as it meets all the stated requirements and is significantly more cost-effective. INIT considers that the Productive solutions could be something that can be applied if the fulfillment would be outsourced as well. Given that ngORCA is planning to do the fulfillment with the card printers (front office, e-mail office) INIT sees no technical benefits in the integration.



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

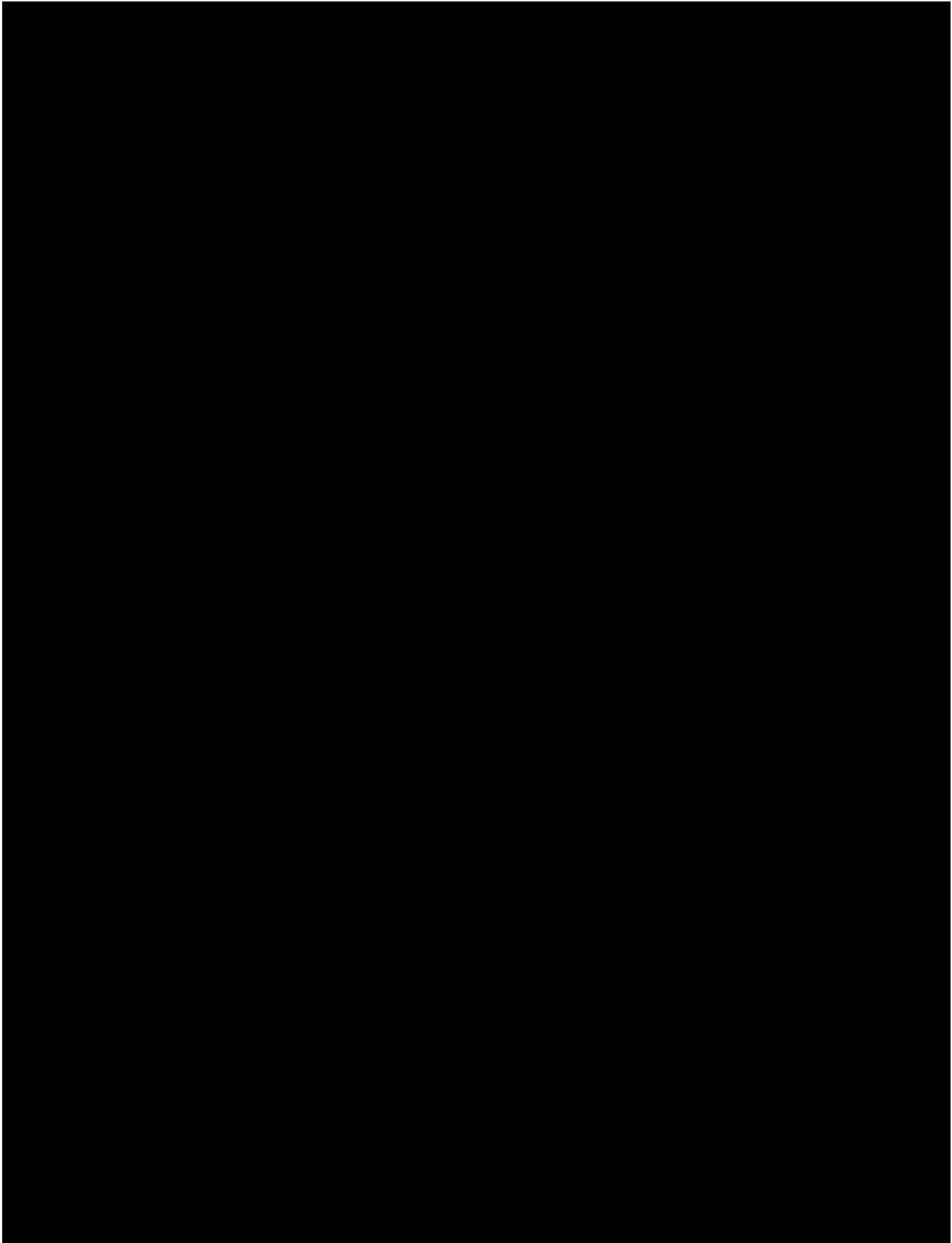
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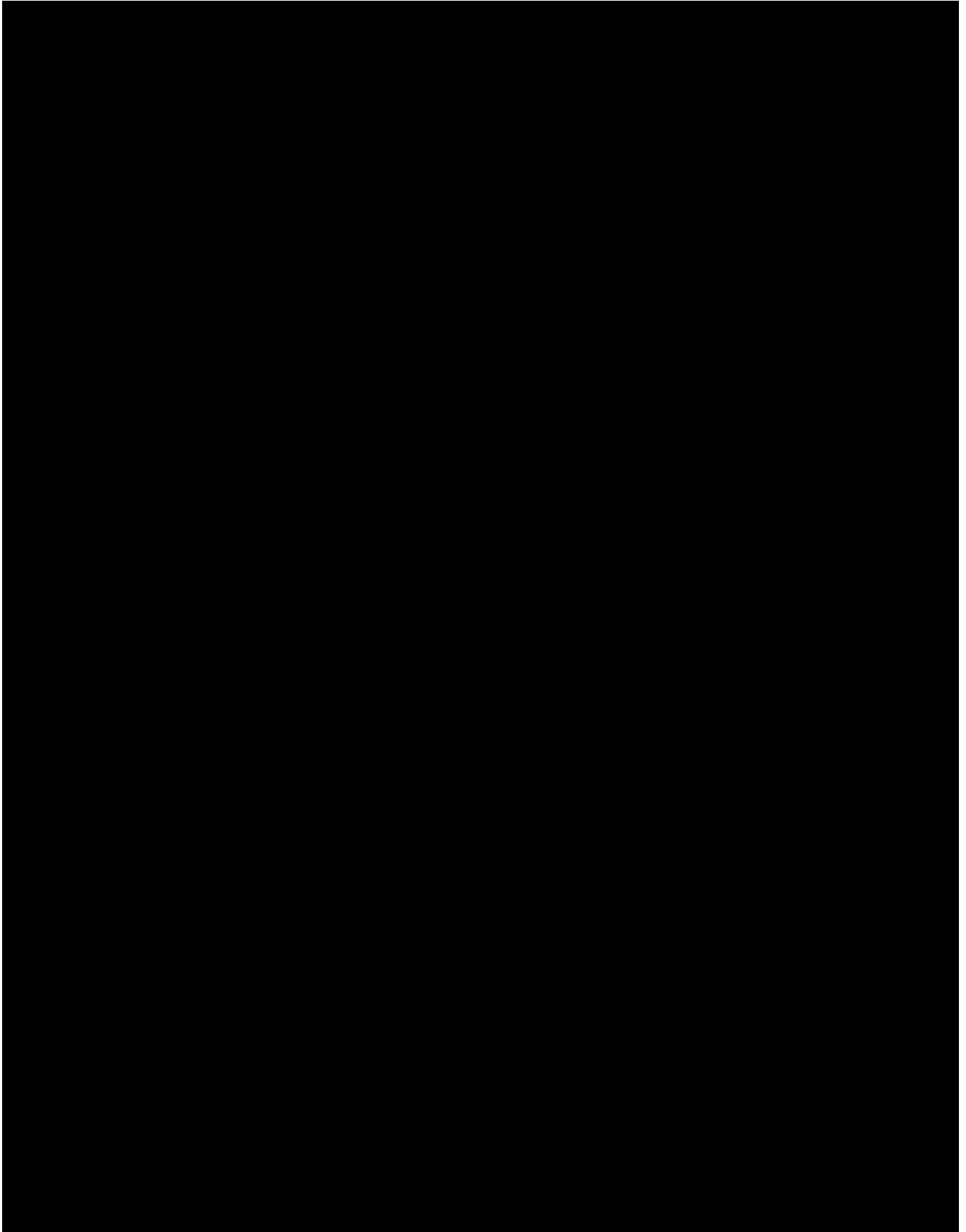
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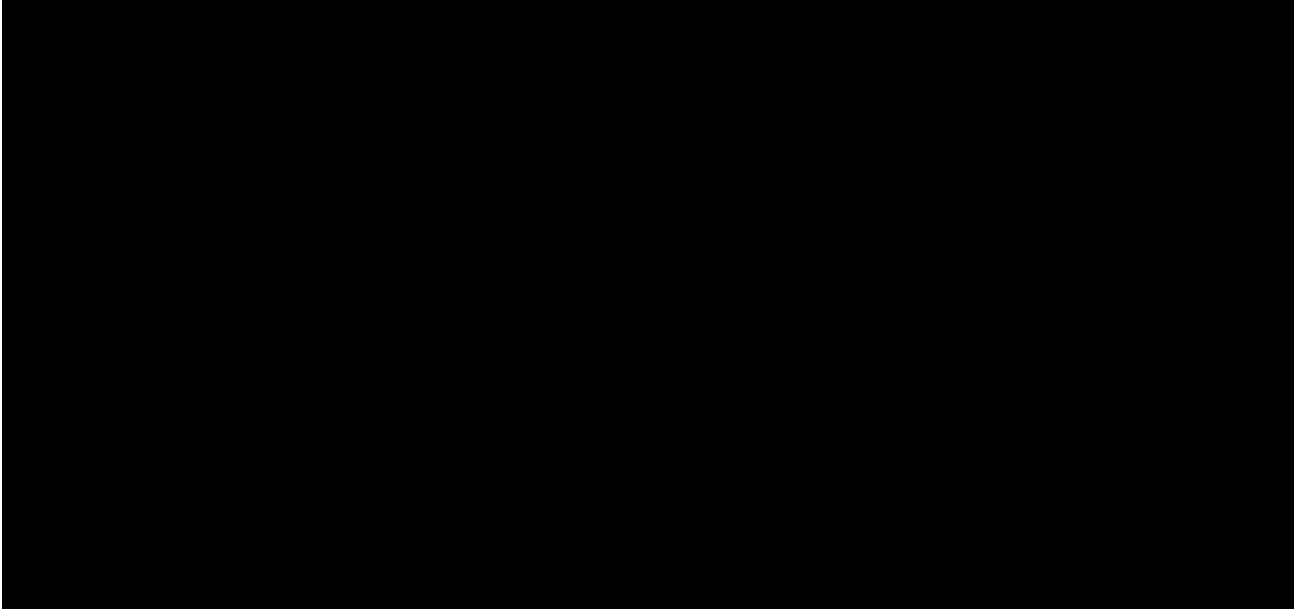
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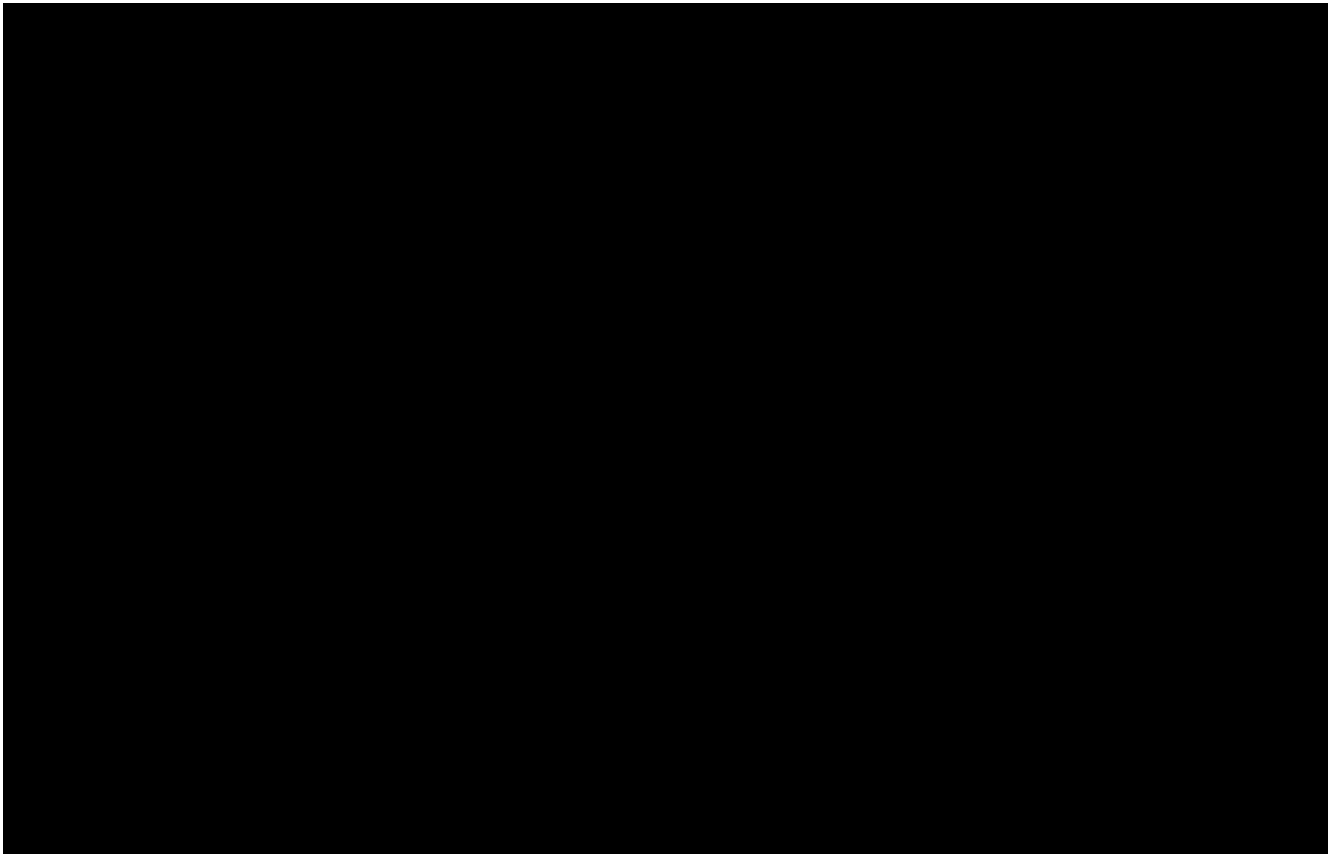




1.8.7.1 Financial Modules / General Ledger



1.8.7.2 Accounts Receivable & Order Entry / Billing Module



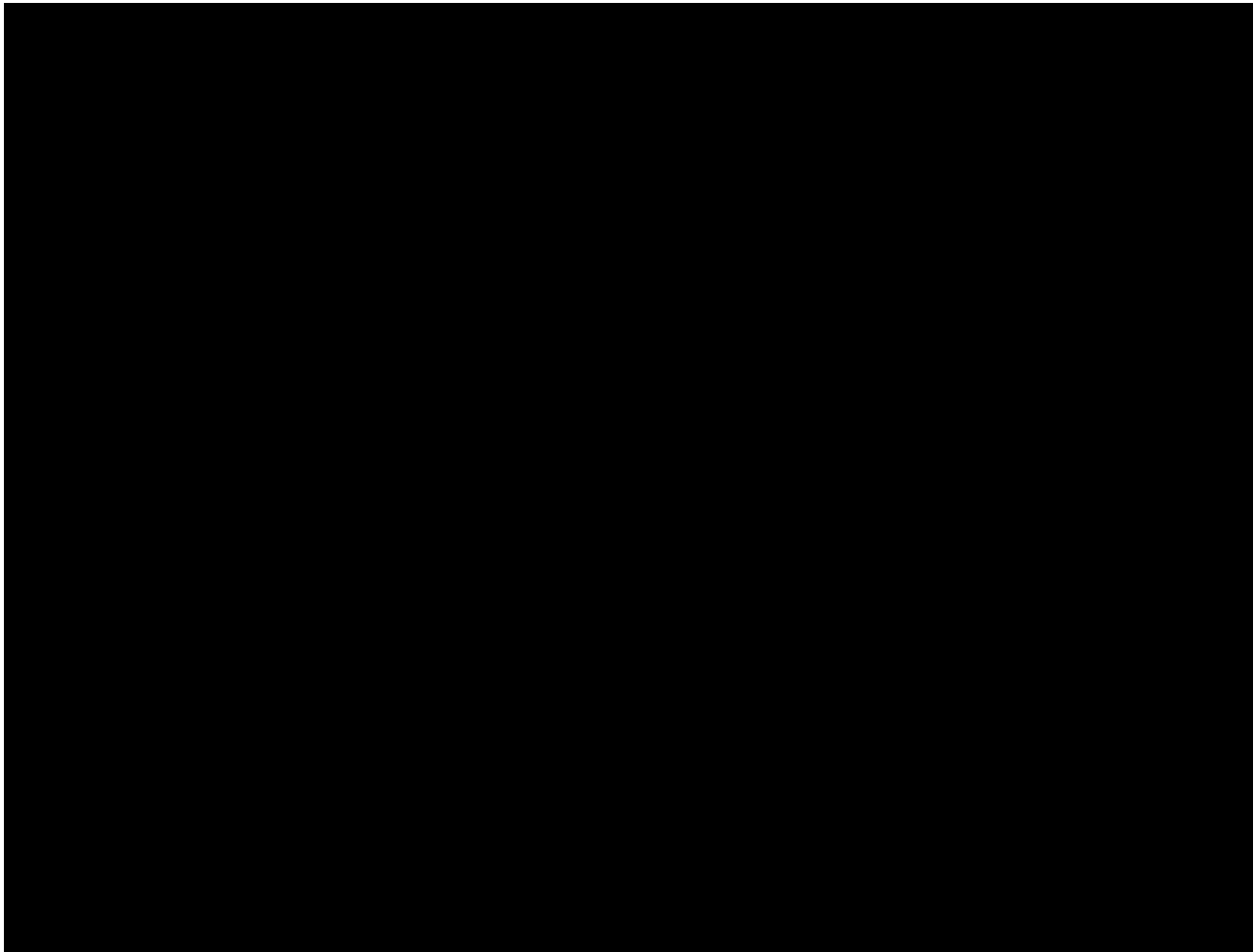
1.8.7.3 Sage 300 Bank Services

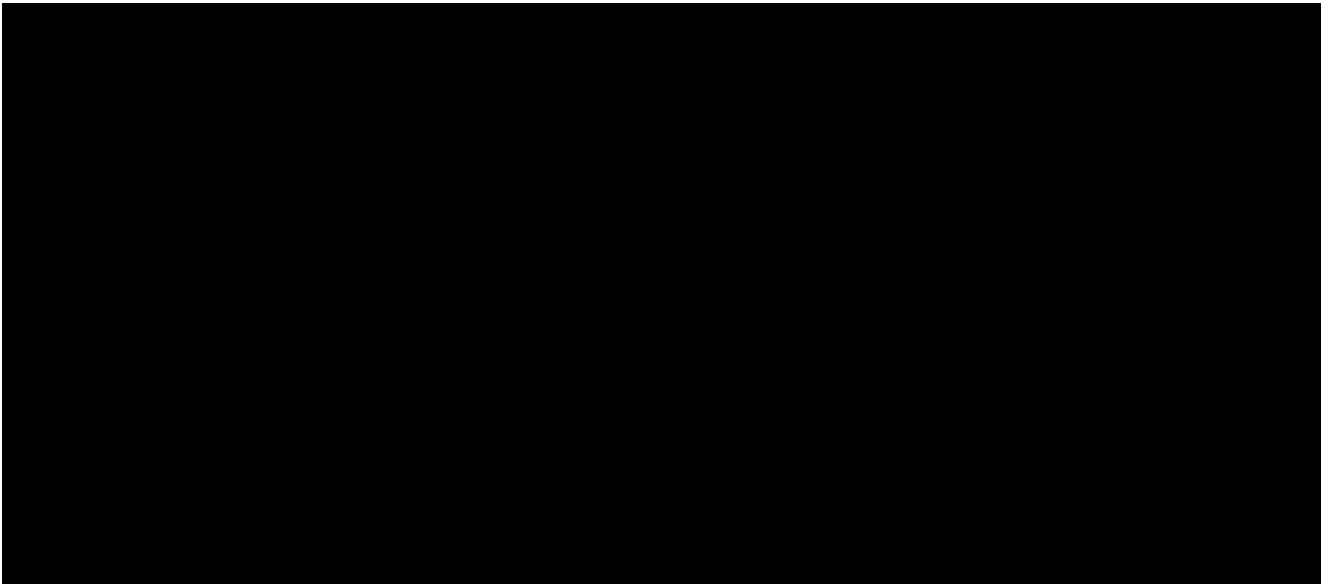
INIT will use the Sage 300 Bank services module to provide reconciliation and clearing of payments. The Sage 300 bank services:

- Receives check information from A/P
- Receives deposit information from Sage 300 A/R
- Provides tools for Setting Up Bank Services
- Processes Bank Transactions
- Reconciles Bank Accounts
- Provides Periodic Processing of Bank Services
- Provides Bank Services Reports

Bank Services centralizes payments and receipts for all Sage 300 accounting programs. It maintains bank information, tracks payments and receipts, reverses payments, returns NSF items, performs reconciliations with bank statements, and creates General Ledger batches for information from bank statements and miscellaneous monthly transactions. Sage 300 Bank Services support.

1.8.7.4 Accounts Payable Module

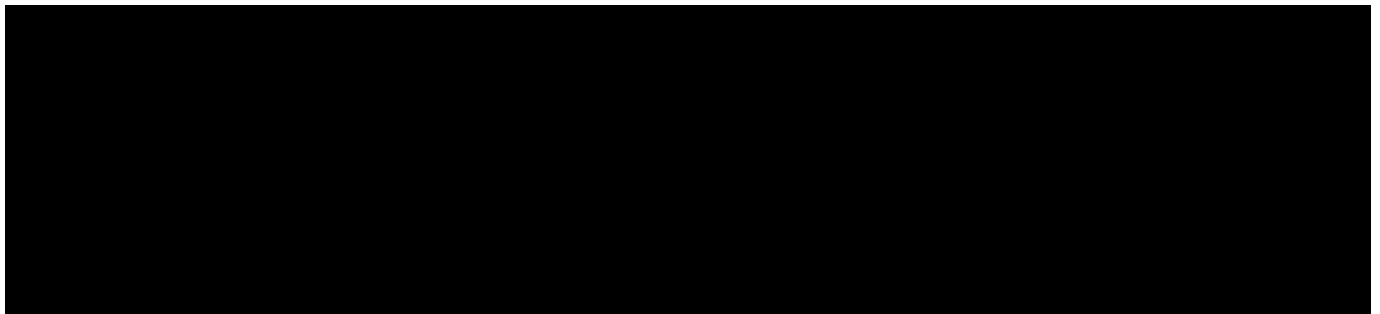


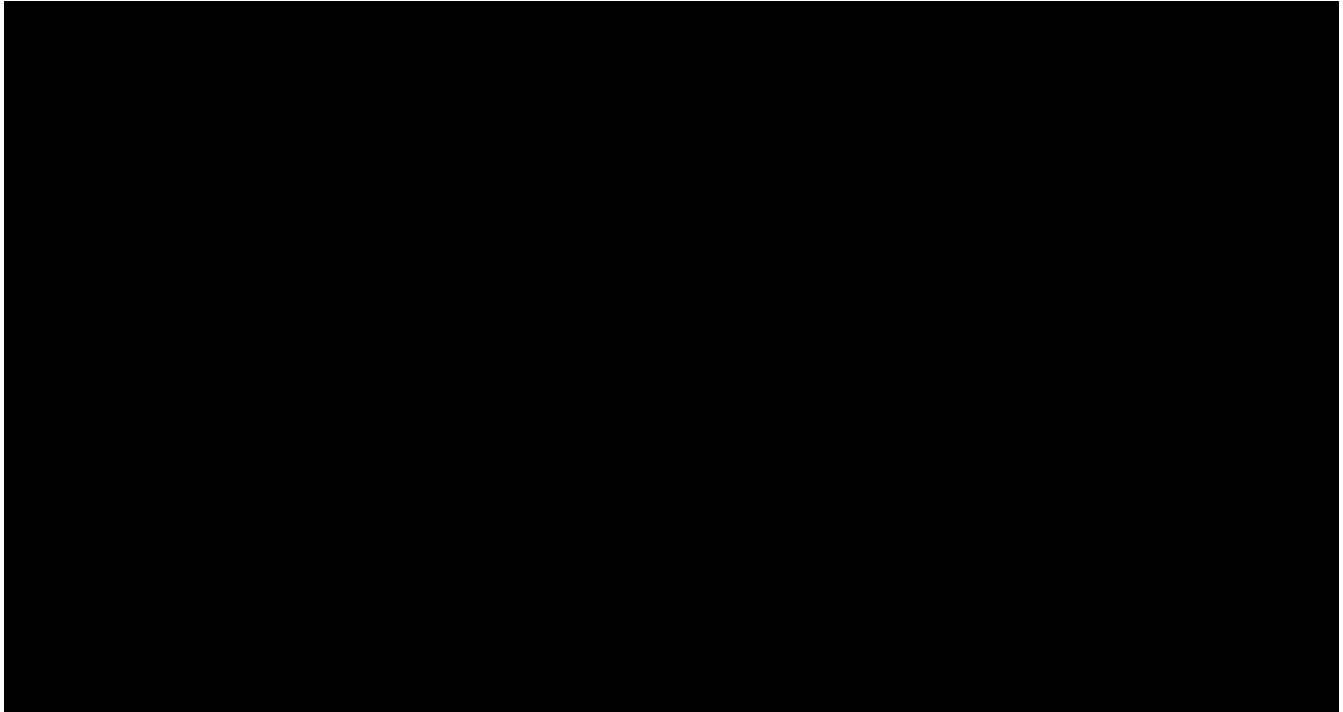


1.8.7.5 Payment Reconciliation

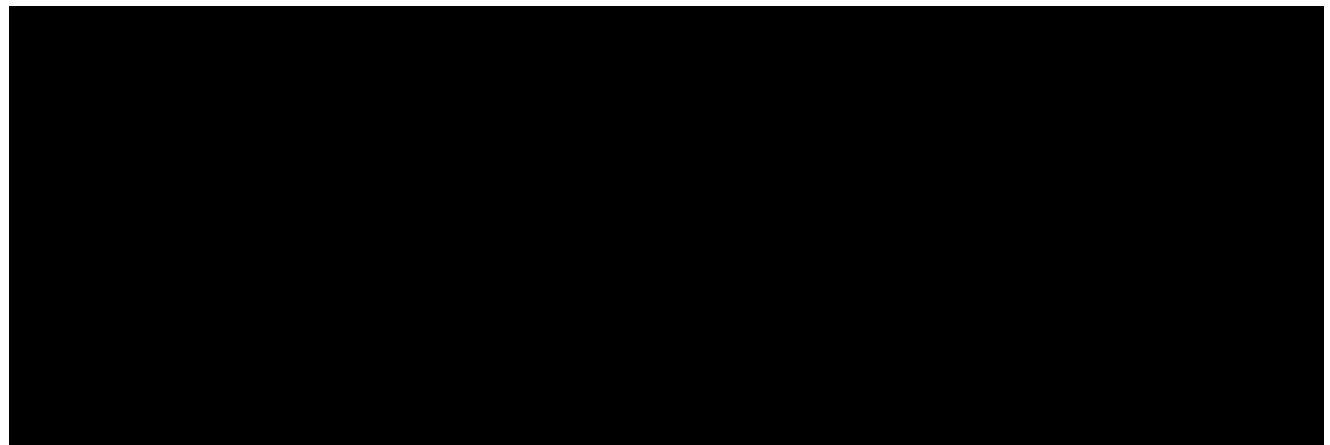
The payments managed in A/P and A/R are reconciled by using the bank reconciliation files from the Bank. Sage 300 Bank services provides the tools to import the reconciliation data.

1.8.7.6 Financial Reporting and Query Module - VASAwed System Reporting

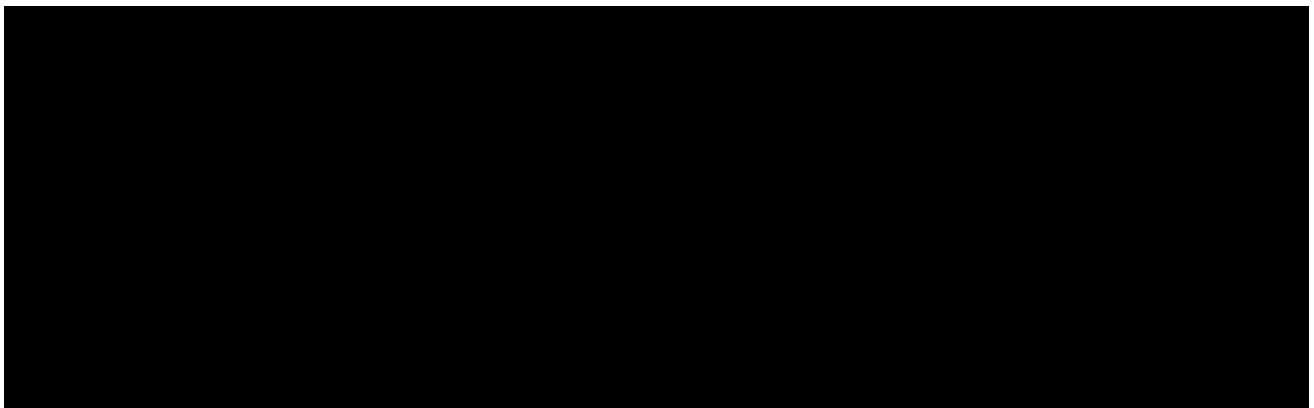




1.8.8 Central Payment Application



1.8.8.1 Payment Gateway



1.8.9 Configuration & Change Management Application

1.8.10 Performance Reporting

INIT utilizes Crystal Reports for its underlying reporting platform. INIT will provide following canned KPI reports on a monthly basis starting at SAT:

- Device reliability
- Device accuracy
- Device availability
- Back office accuracy



- Back office availability
- Server authorization rate
- Maintenance response times

The reports will include tables and graphical charts showing the current and historical performance of each device or system under measurement. The reports will include a calculation of credits to be assessed in the current month based on current and prior performance. The System will allow the Agencies to run, view and download reports. Additionally, INIT has budgeted 100 hours for agency-specific modification of canned reports.

i For next gen ORCA, the definition of 'users' of the system is inclusive of both Agency operators and administrators as well as patrons/customers so this would include public transit riders, business customers who manage public transportation benefits, agency operators and administrators, bus drivers, fare inspectors and other people who are interfacing with next gen ORCA systems.

**INIT's Proven Methodology and Approach to Implementation
and Operation and Maintenance Services**

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal June 8, 2018



init

The Future of Mobility

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The sections listed below contain trade secret information that provides a business advantage to INIT over competitors. These sections are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

CONFIDENTIAL SECTIONS:

2.2 The INIT Team Organizational Chart

2.3 INIT's Highly Qualified and Experienced Key Personnel

2.4 INIT's Key Personnel are Available and Accessible

2.5.2 Implementation Services

2.6 INIT's Proven Transition Methodology and Approach

2.7 Operational knowledge transfer and excellence through effective O&M manuals

2.8 INIT's Experienced and Proven Risk Management Approach

2.9 Discuss any special considerations or challenges

2.10 An Achievable Project Schedule

2.12 INIT's Partnership with ROOT for Effective Operation and Maintenance

2.14 INIT's Sample Disaster Recovery Plan



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2 Methodology & Approach to Implementation and Operations & Maintenance

As a global leader in transportation innovation and technology, we believe you will find INIT's combination of service-proven implementation, technology and user experience design, as well as our industry leading secure, open, extensible system architecture to be advantageous in meeting the needs of ngORCA. Equally important is our success in creating and delivering an experienced, collaborative, and agile project management methodology; ensuring that our team's focus on the critical factors of overall project success are always at the forefront.

With legacy ORCA nearing end-of-life, schedule and focus on the core requirements are essential in order to deliver a modernized, customer-focused, secure system with cost-efficiencies as well as minimal disruption of the current operation Puget Sound riders have come to enjoy and expect. As the System Integrator (SI) for several of our fare collection projects, we believe INIT is equipped to do just that.

The pace with which technology moves in today's competitive environments is often faster than people do or are prepared for. As such, in addition to our Research and Development group, we have built into our Project Teams the capacity to build a robust focus on helping our customers translate technological visions into real-time benefits for their patrons.

Changes in technology are inevitable; this is why we have built-in flexibility as part of our overall system architecture with user experience at the forefront. INIT's vast experience in partnering and collaborating with technology experts and vendors in their given field(s) and integrating them as part of the overall solution further expands the capacity for us to accommodate changes that arise. We will work with the Agencies to identify areas in which configuration or implementation changes are the most cost-effective with an eye specific to risk mitigation.

With over 30 years of experience in driving transit innovations, it is clear that both transit and technology are our passion. Pointedly, rather than wait for technology to change and drive our business, we seek to be part of that passion and drive and deliver the change with our customer in a manner that is mutually beneficial for the customer and their patrons.

INIT is poised to deliver for ngORCA an innovative, seamless, extensible, and accessible customer-centric solution.

2.1 INIT's Capability Conformance - Matrix Tab 1

INIT's Capability Conformance Matrix can be found in the Appendix.



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2.2 INIT's Evolving Maturity to Deliver Complex Projects

INIT has made numerous strategic and tactical changes to our business over the past few years in an effort to increase our ability to meet the evolving needs of our customers. We acknowledge a past that was reflective of a company transitioning from a startup mentality to a mature organization. Now in our 35th year of business, INIT can demonstrate significantly increased capacity, capabilities, and consistency in our products and projects. Much of this stems from INIT's evolution from being a single-source ITS provider to that of a true Systems Integrator, acknowledging the fact that all of our Customers have requirements for multiple solutions which require seamless integration to perform effectively across the enterprise. Some of these changes include:

- Establishing Seattle as a Regional office with Senior Management presence
- Adding significantly to our PM capabilities and capacities
- All INIT PMs are either PMI certified (PMP or CAPM), or on a path to earn it
- Dedicating lead System Engineers to projects, so that technical leadership is both committed and consistent
- Adding to our Systems Engineering teams, including a new college hire program
- Adding sales staff in the region, so that we can respond more quickly to customer change requests
- Hiring staff with backgrounds in system integration and complex deployments
- Hiring an INIT training manager and engaging 3rd party training firms to bring a more sophisticated training strategy
- Internal knowledge sharing groups specific to fare collection projects
- Adding Executive Project Sponsors in Karlsruhe to ensure projects have resources and priority to meet schedule, budget, and quality requirements
- Providing for consistency of staff, with a goal of maintaining PM and SE consistency throughout a project

These strategic changes have allowed INIT to better handle ever evolving projects, including multiple projects of the same type (CAD/AVL, Fare Collection, APC, etc.). In fact, it makes it a strength of ours as we can leverage lessons, resources, and experience across the company. Over the past year, we were able to publicly launch two fare collection systems as well as continue development on three more. This is certainly proof that these changes have had a positive effect on INIT and our Projects.

Several additional changes are planned which will benefit the ngORCA project:

- Establishing a Seattle Development Center so that software development activities can be done in the region including coordination with our Karlsruhe Development Teams (see next section regarding Dublin, Ireland)
- Adding the role of Technical Writer to INIT's Project Team

Overall, we are an evolving organization working on ways to gain effectiveness and efficiency while maintaining a commitment to meet our customer's expectations. This evolution will never truly be complete and will reflect the changing needs of public transit worldwide.

2.3 Planning for Future Projects

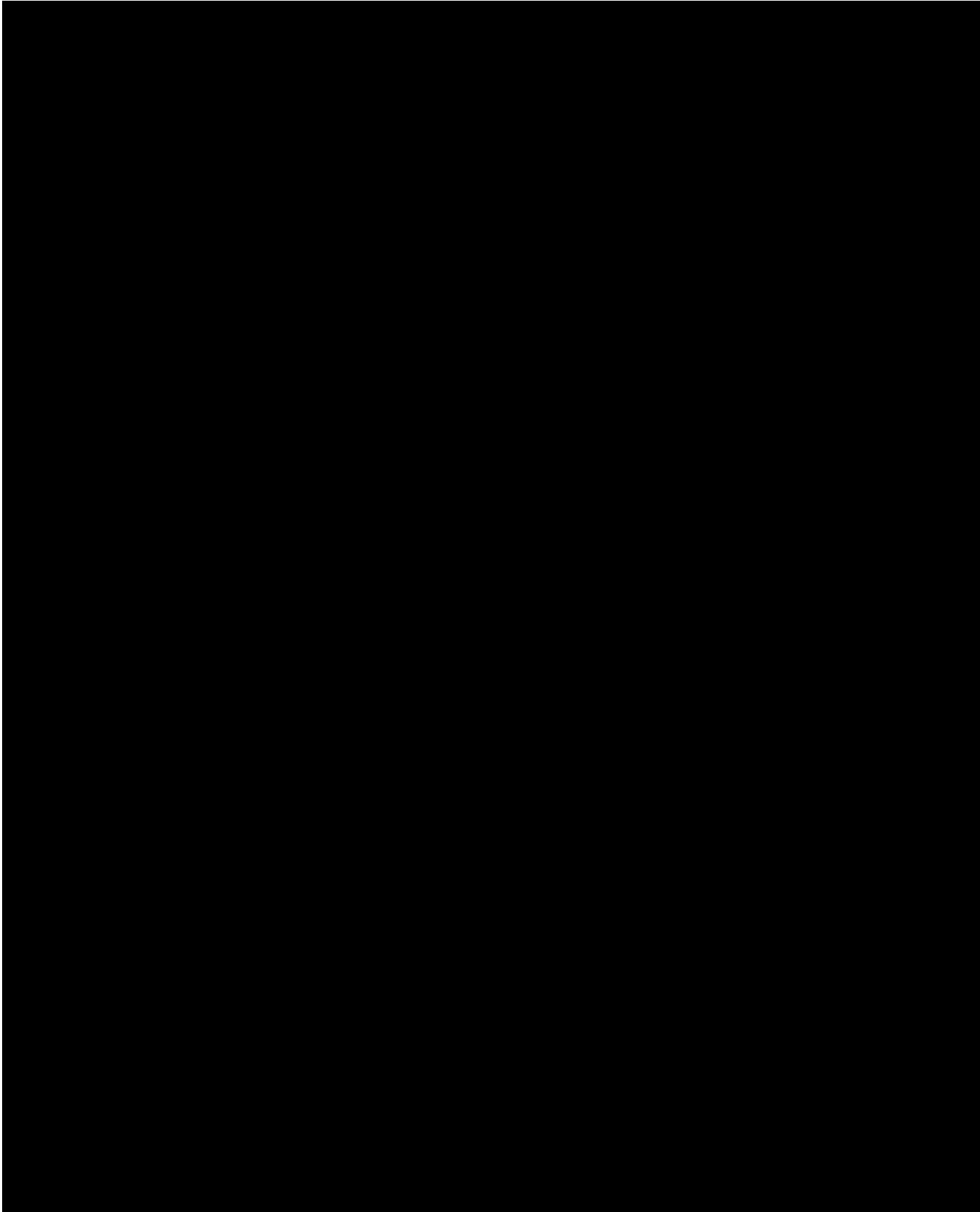
INIT's success in recent fare collection projects has brought about the need to grow our technical and project management capacities. Currently, INIT is recruiting for additional senior level resources as well as some college hires to train under them. We expect to add a significant number of resources nationwide, and while they aren't planned to directly be on this project, we do expect them to impact our overall efficiency and effectiveness, as well as mitigate the risk of losing a key project team member from the ngORCA team.

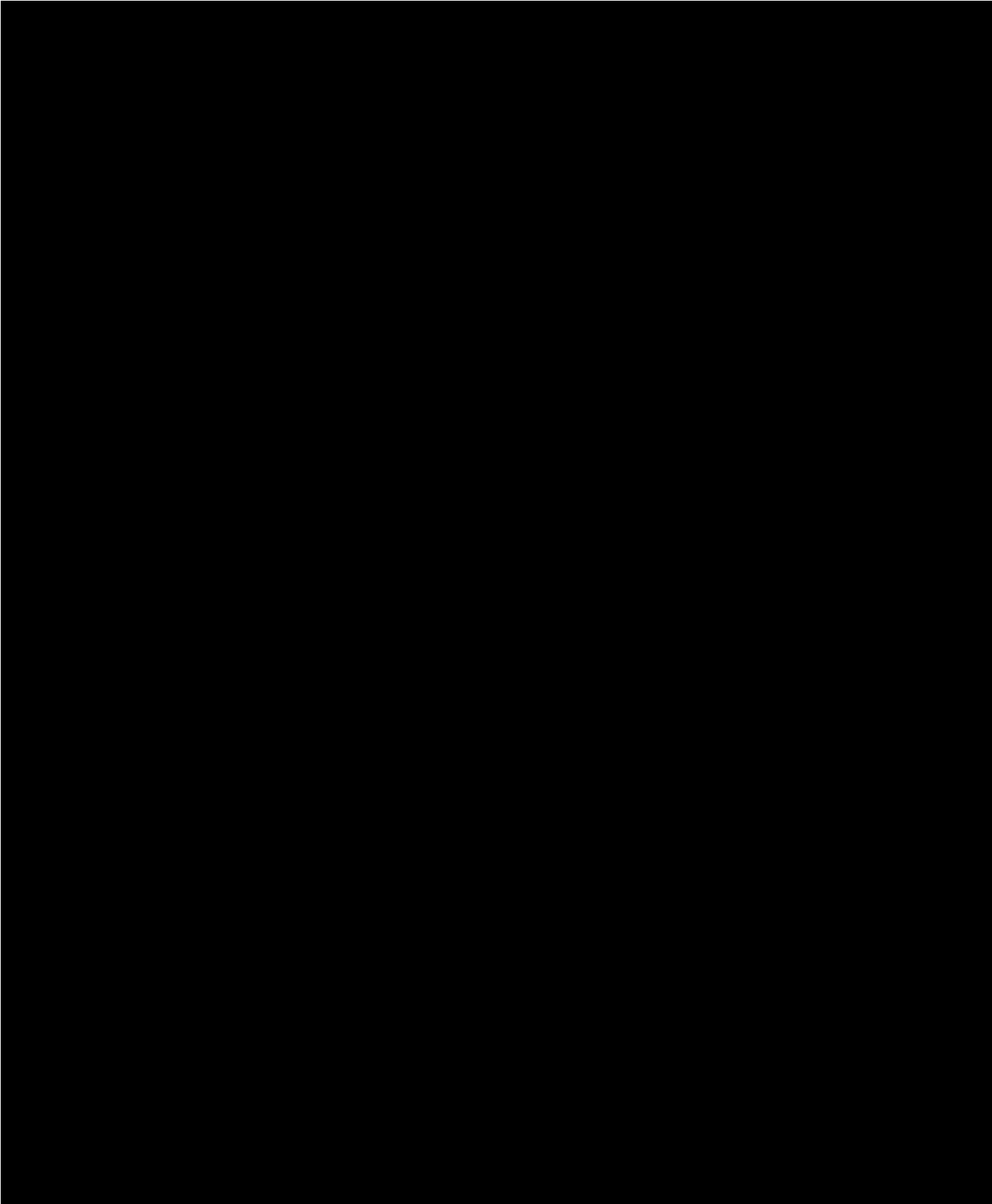
We have also recently opened an INIT Development Center in Dublin, Ireland with its own management and development team. The goal is to grow this group to approximately 20 full time developers focused mainly on our core fare collection products and projects. This center should be open and functioning in June 2018. We are likewise very excited to use this project to start our Seattle Development center. This will leverage our current expertise in fare collection systems as well as the region's rich and innovative talent pool in software development.

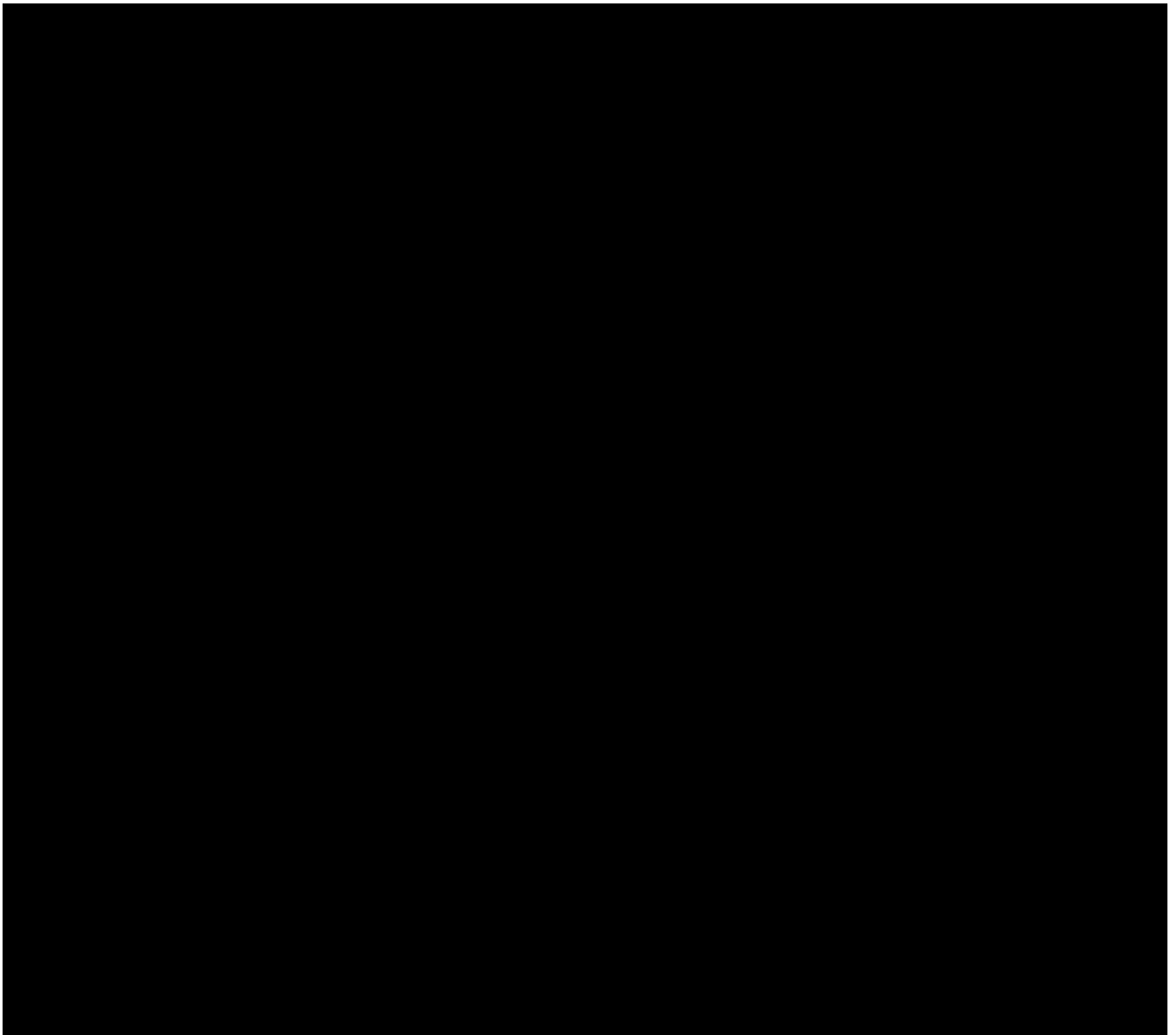
In addition to this, INIT has added development capacity via the following:

- Added 15-20 freelance developers to handle increased demand
- Extended relationships with European universities
- Acquisitions of companies with different delivery models, which we plan on extending to other teams within INIT.
- Outsourcing of some software modules and products to development centers in Portugal and Belarus. This is a result of recent acquisitions which have been leveraging these outsourcing models.

2.4 The INIT Team Organizational Chart

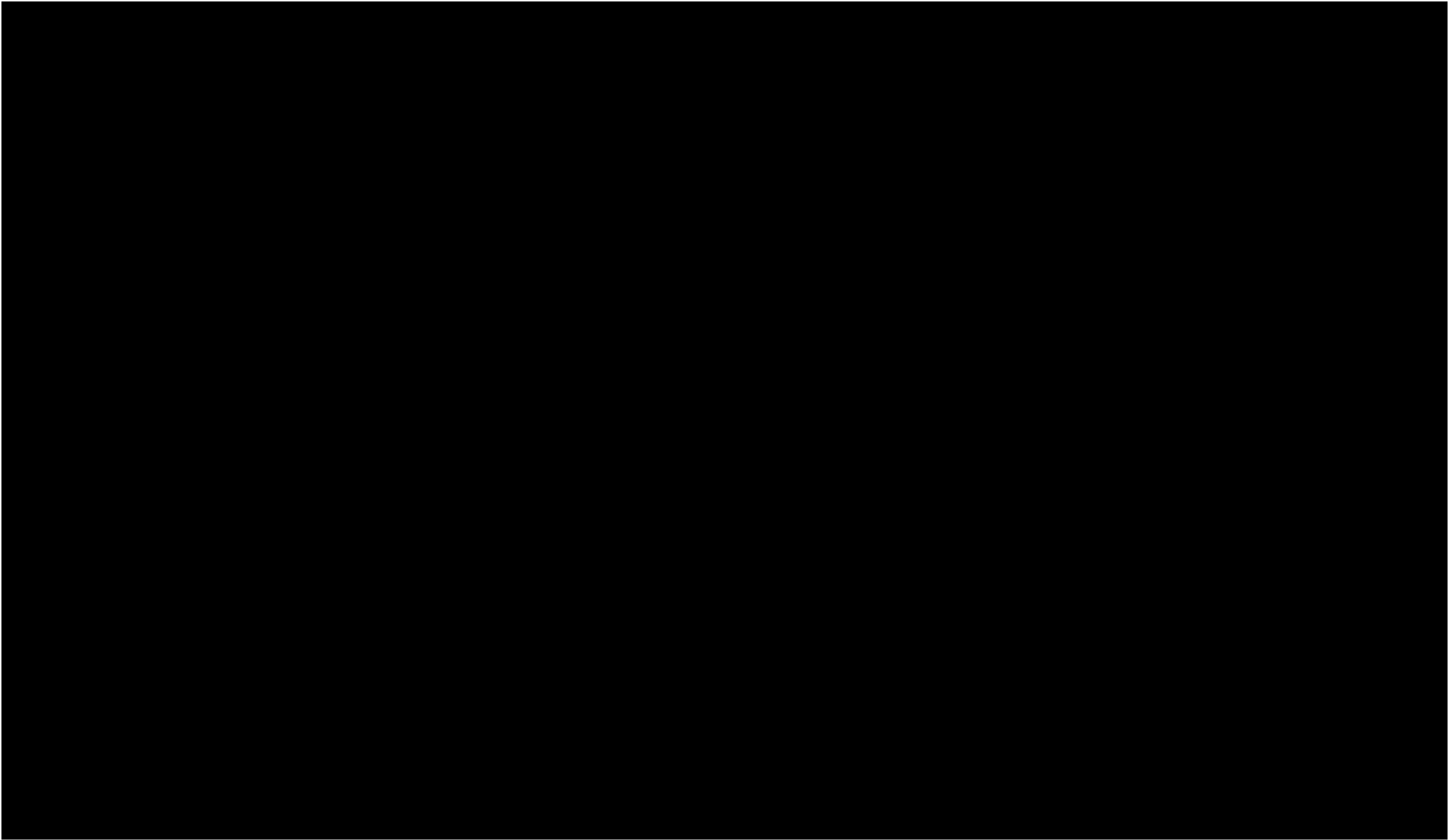








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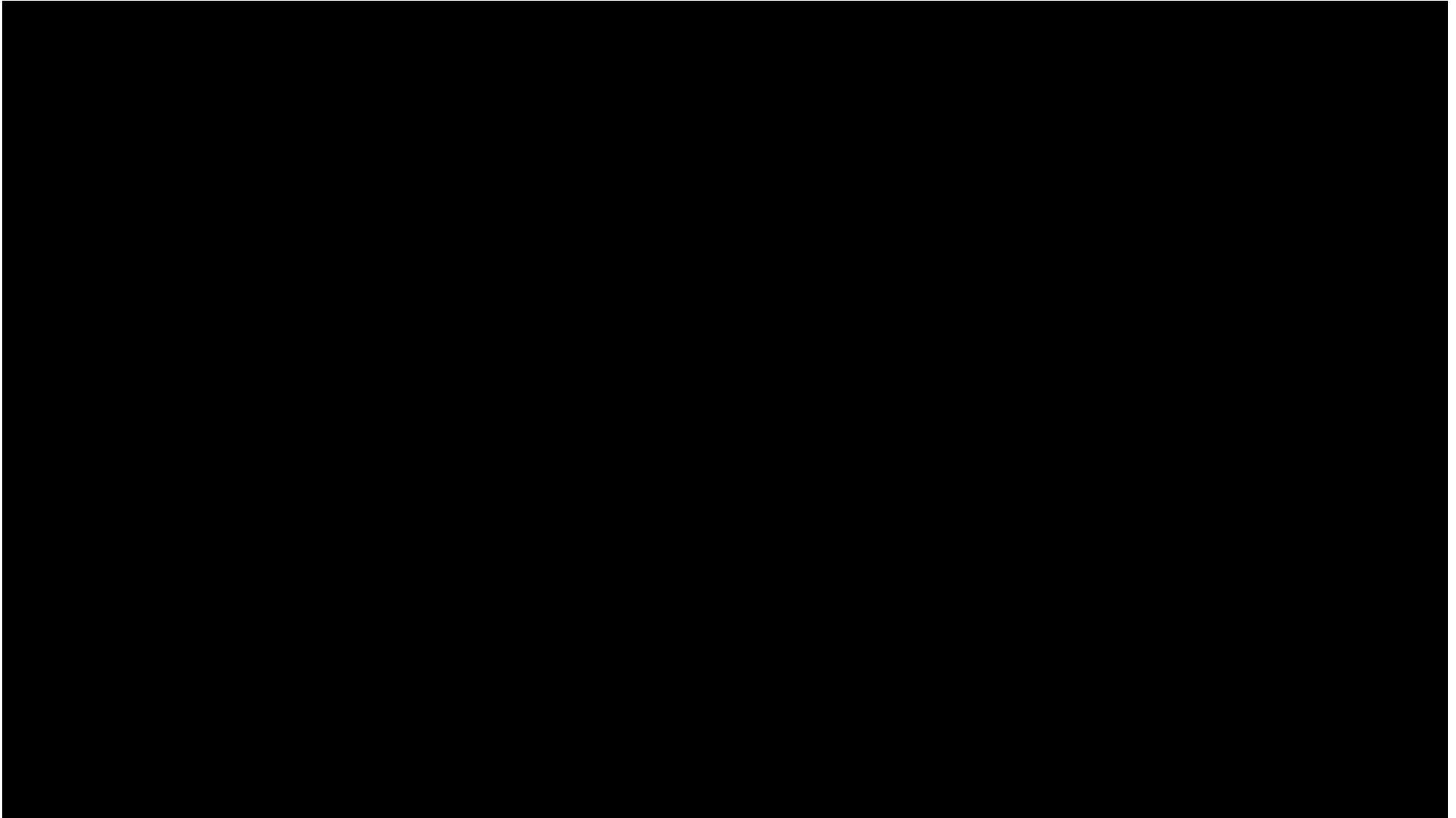


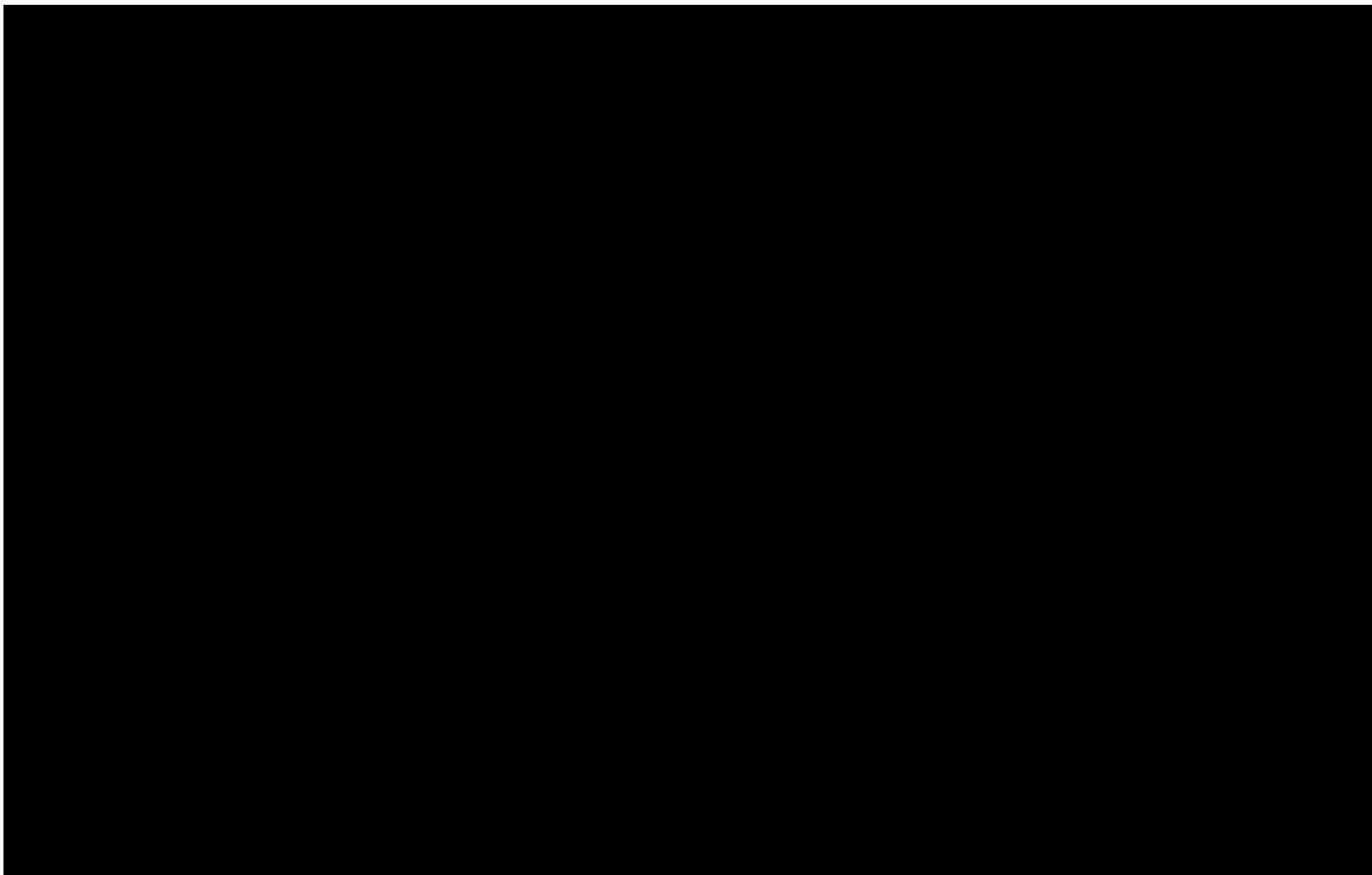


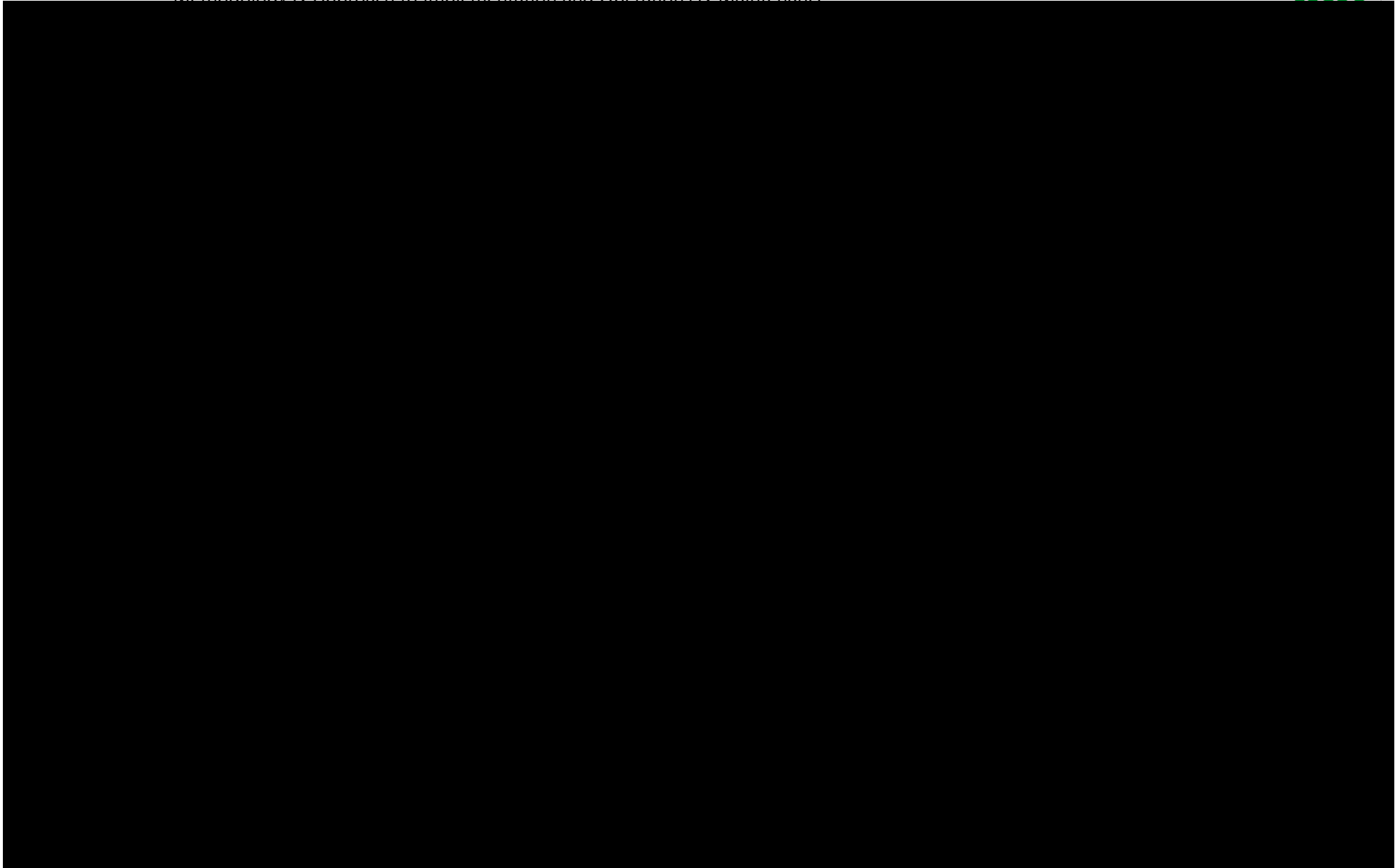
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2.5 INIT's Highly Qualified and Experienced Key Personnel



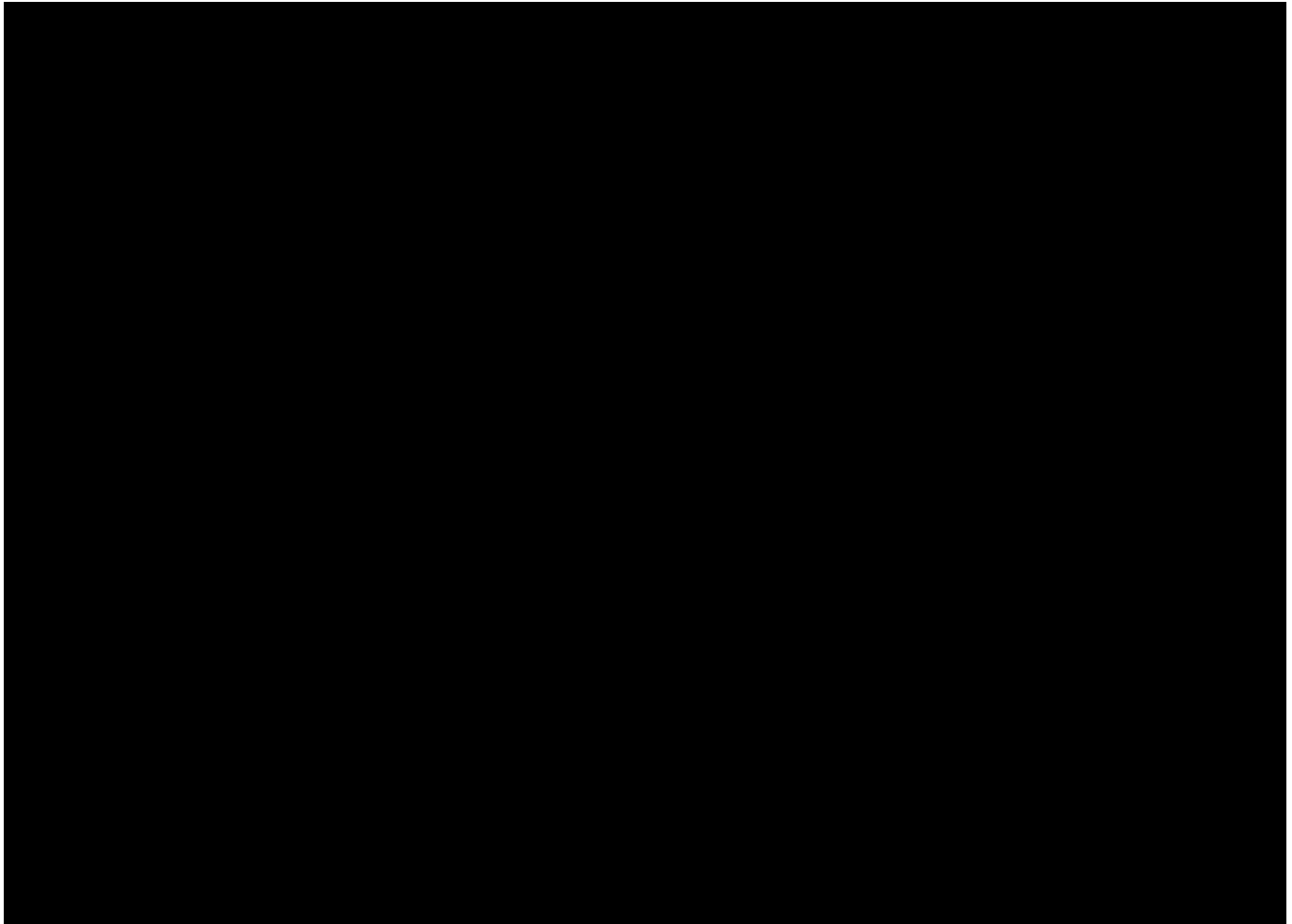






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2.6 INIT's Key Personnel are Available and Accessible



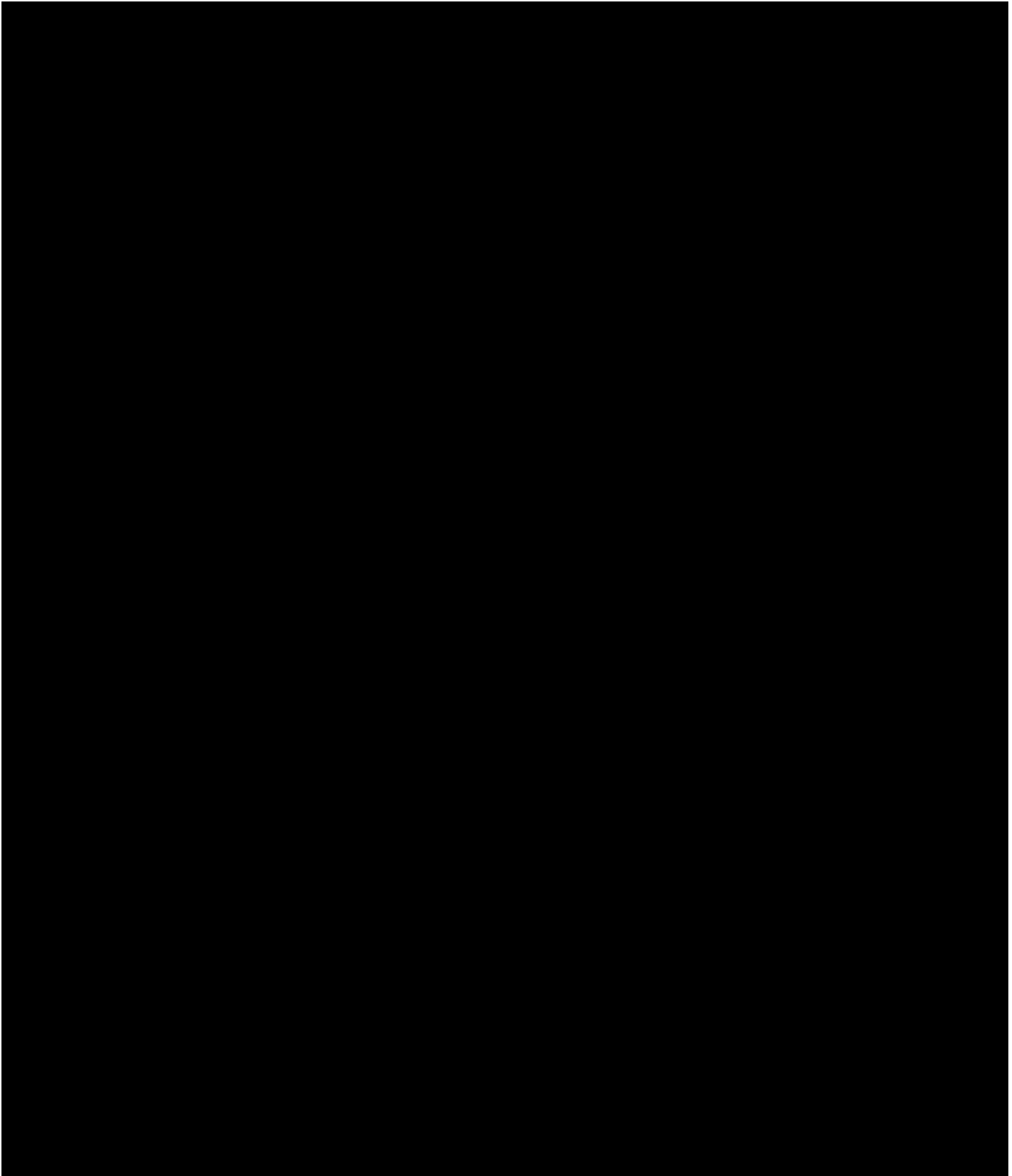
2.7 INIT's Experienced Methodology and Approach to Implementation Services

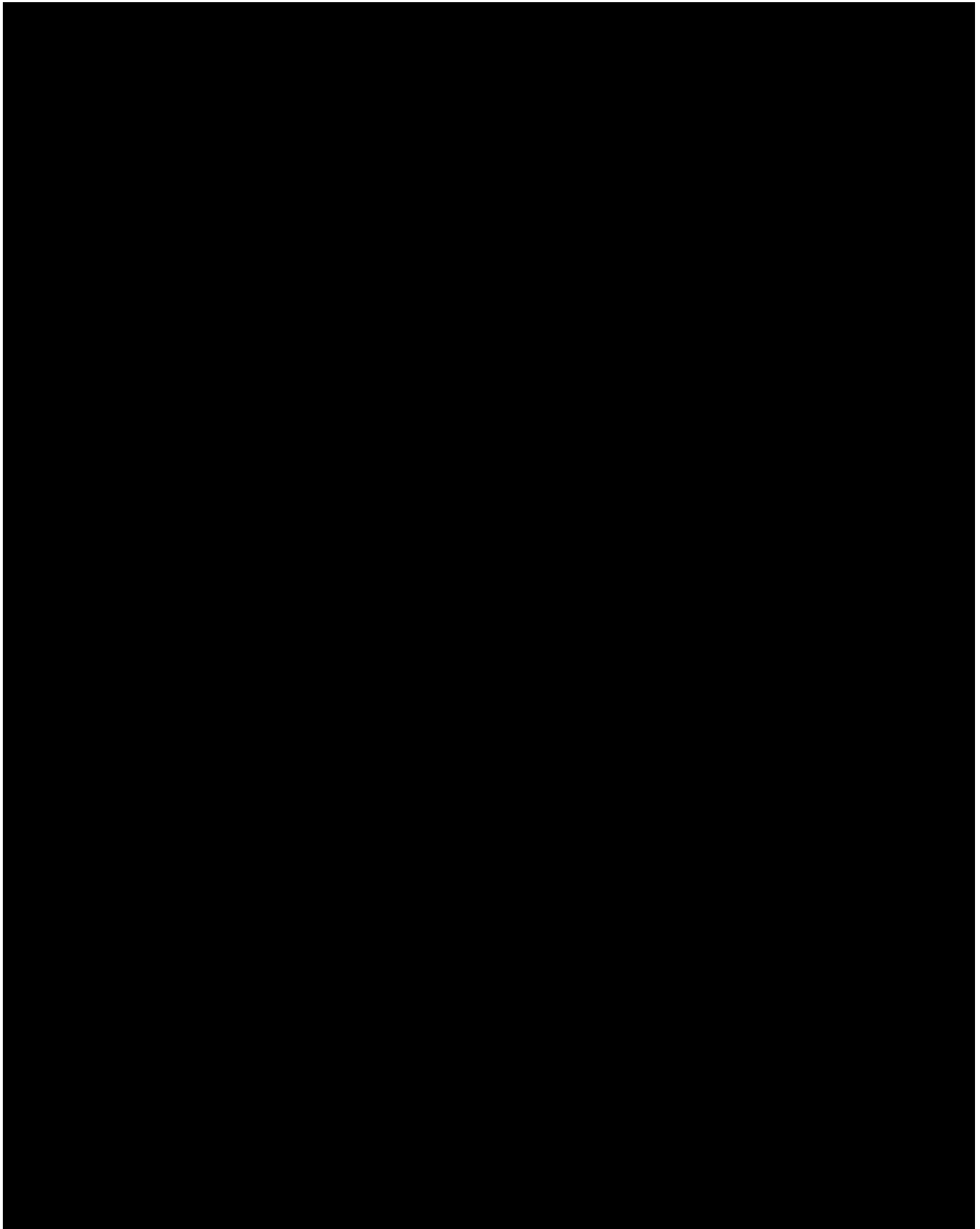
2.7.1 Explanation of Section Numbering

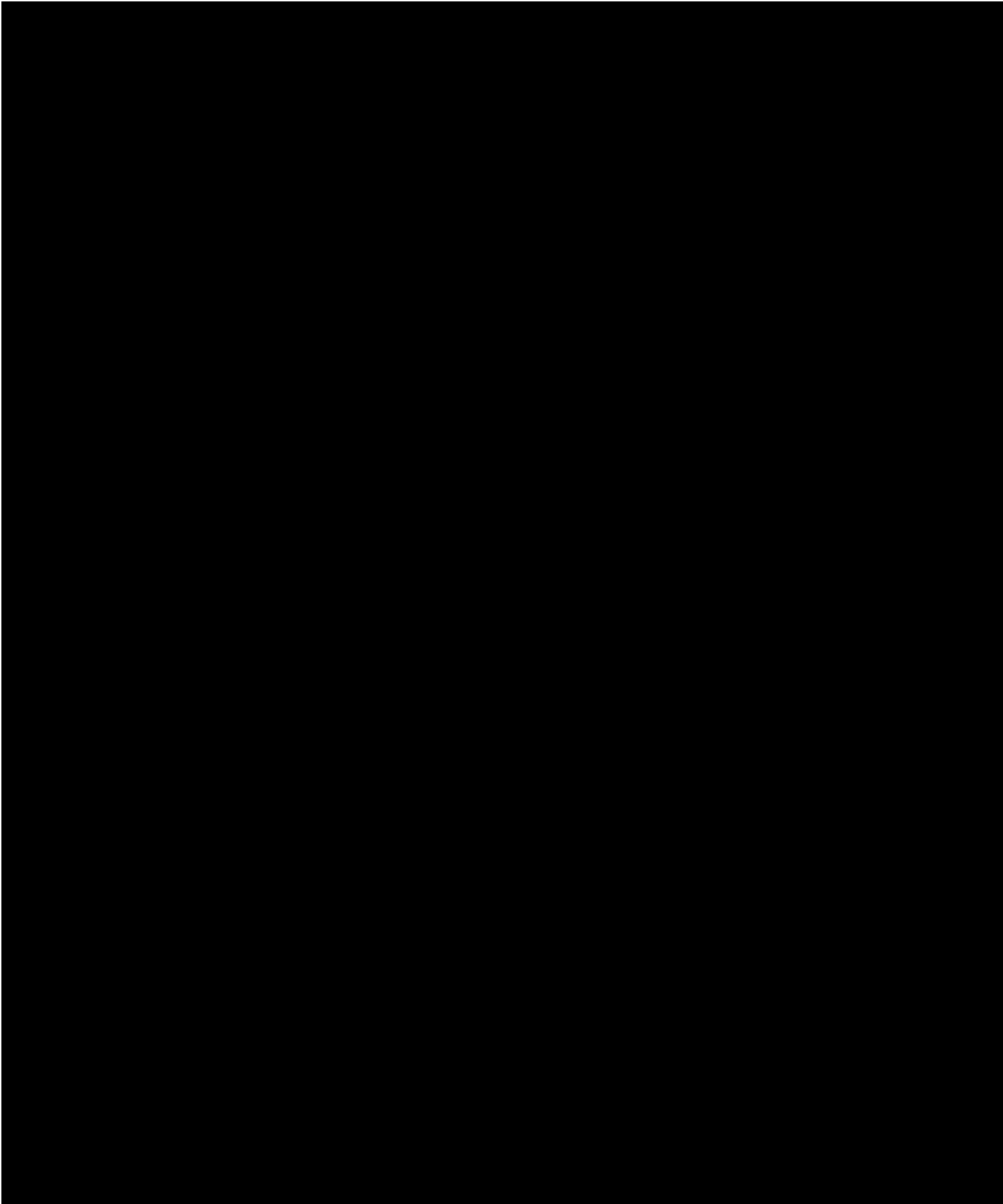
In this section we provide our response detailing INIT's methodology and approach to the Implementation Services specified in the ngORCA Scope of Work (SOW), Section 2. For ease of comparative review and evaluation, in order to maintain a one-to-one numbering sequence between this section 2.5 and the SOW Section 2, we have advanced the section numbers in this document. In so doing please note INIT's first sub-section reference below of 2.5.2.1 has the third and fourth integer corresponding with the SOW Section 2.1. For the sections that follow, the third and fourth integers will increase accordingly so that they map to the SOW sections that follow (e.g. 2.5.2.2 equates to SOW Section 2.2 Design Review & Approvals).

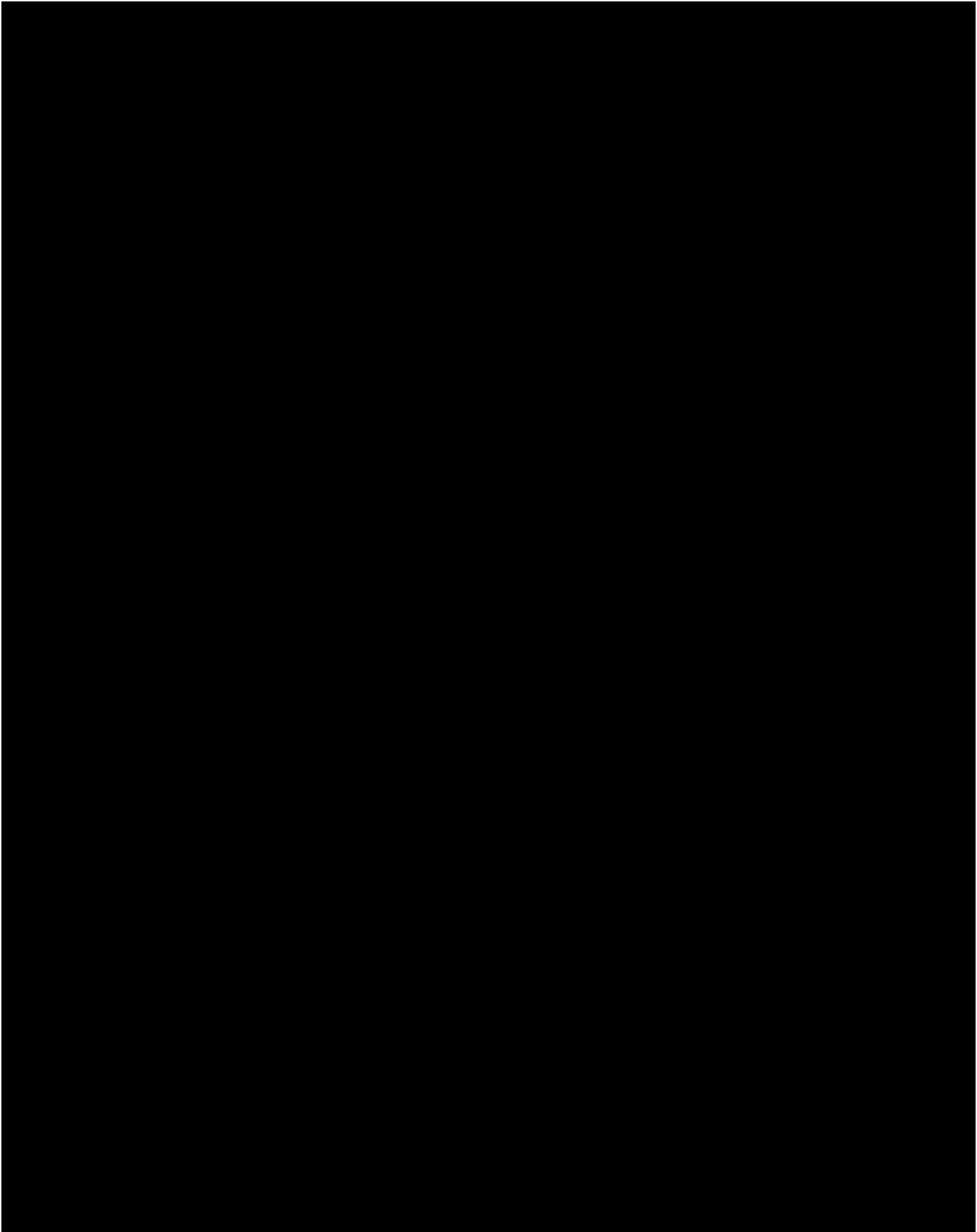


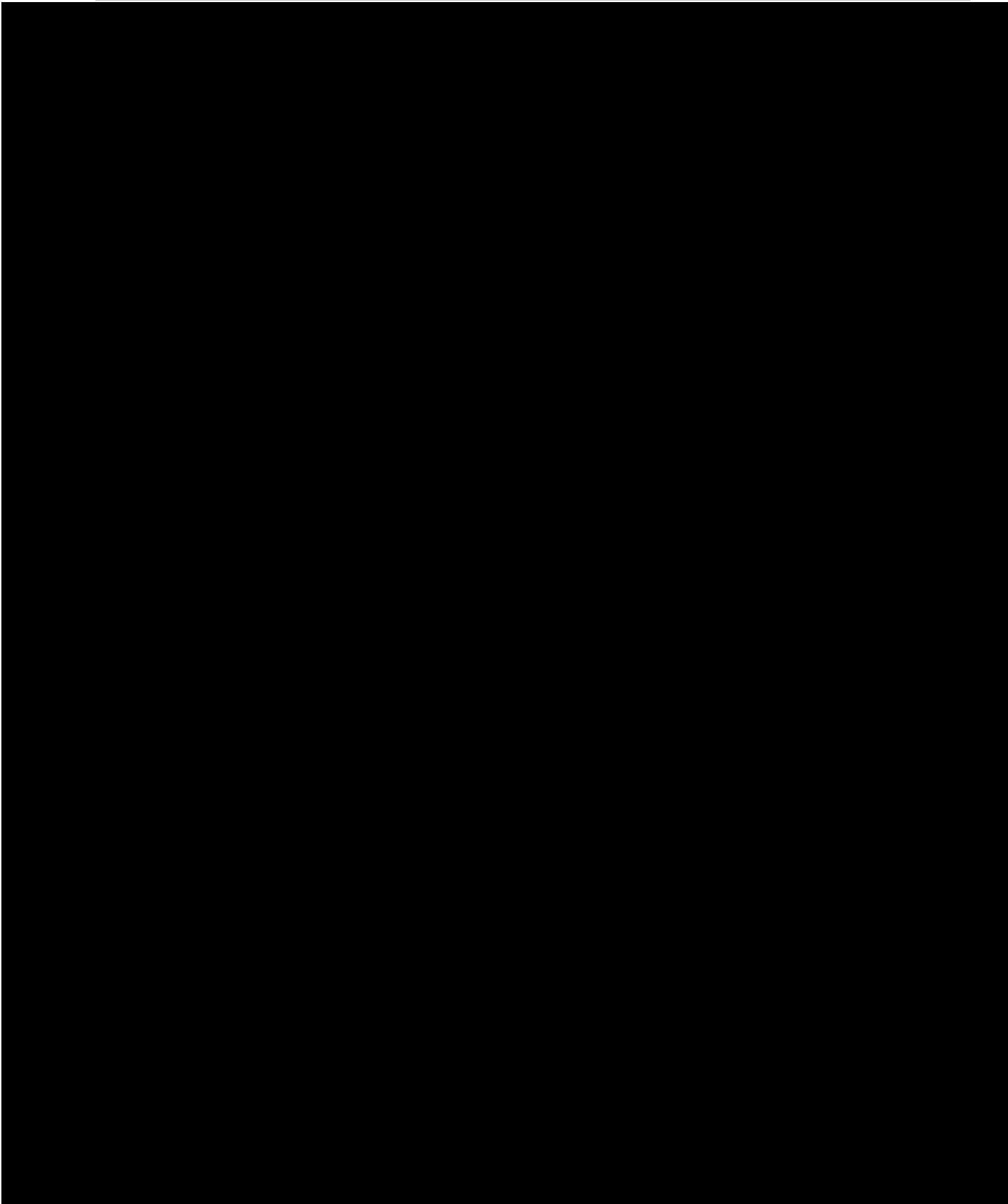
2.7.2 Implementation Services

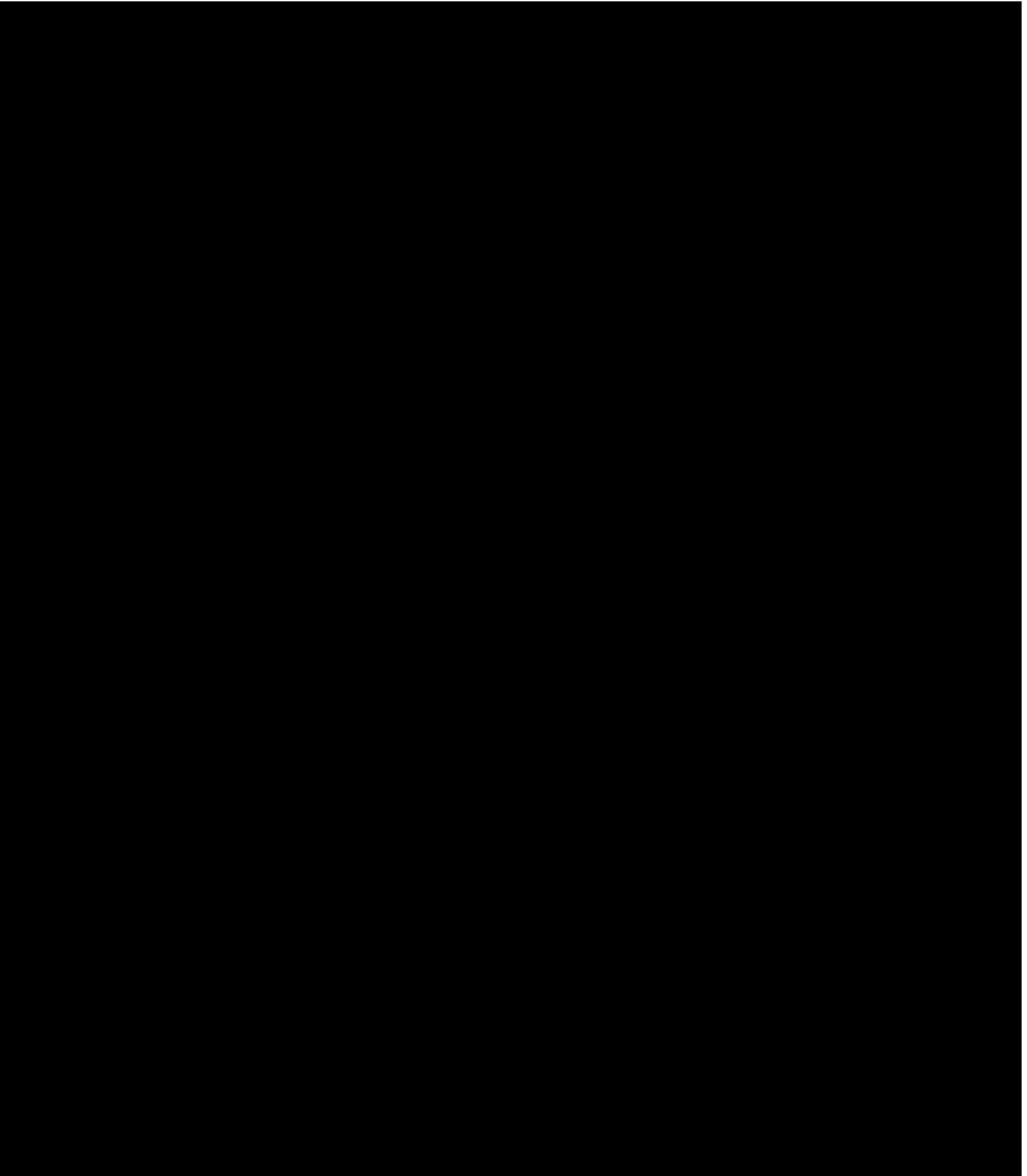


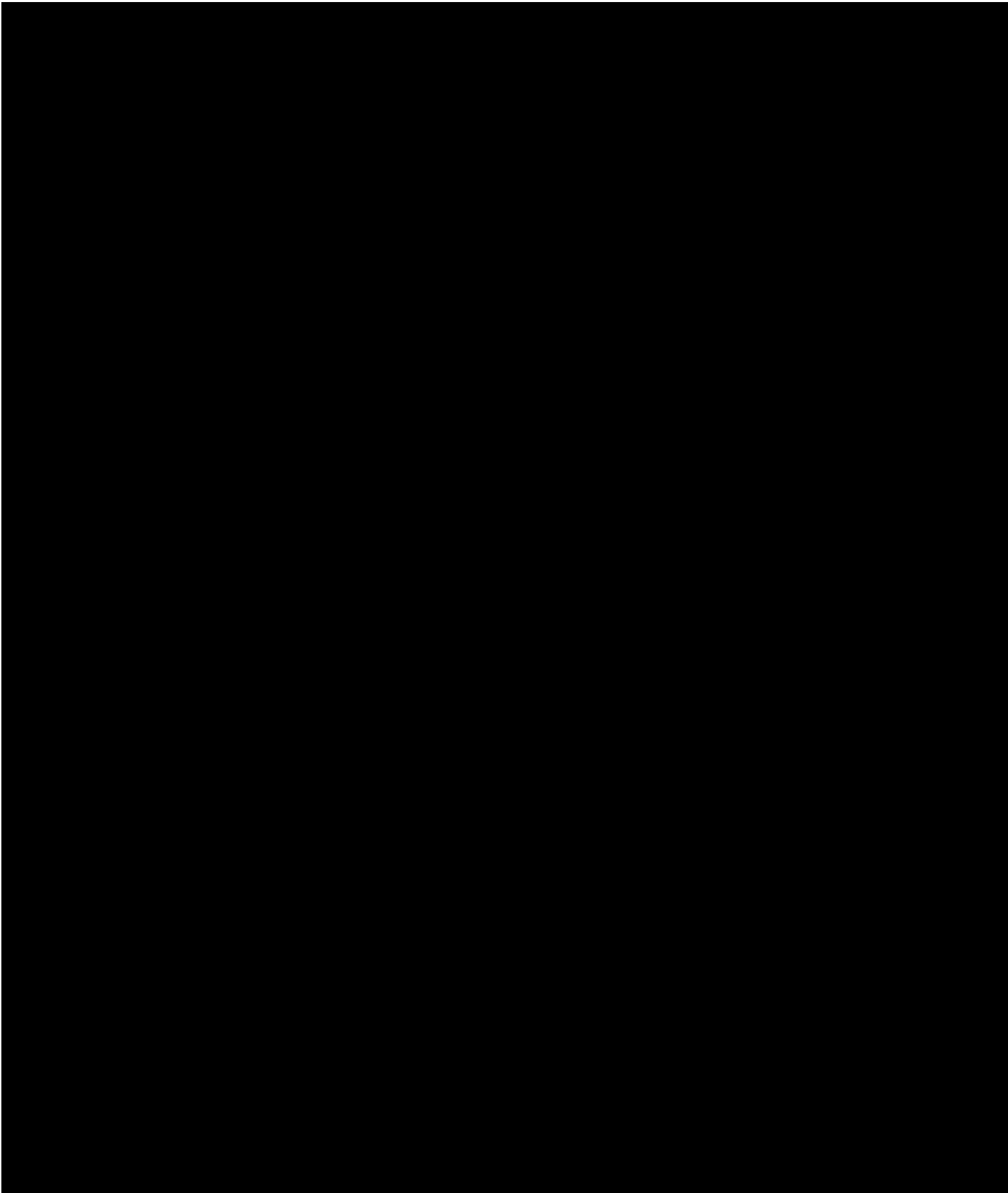


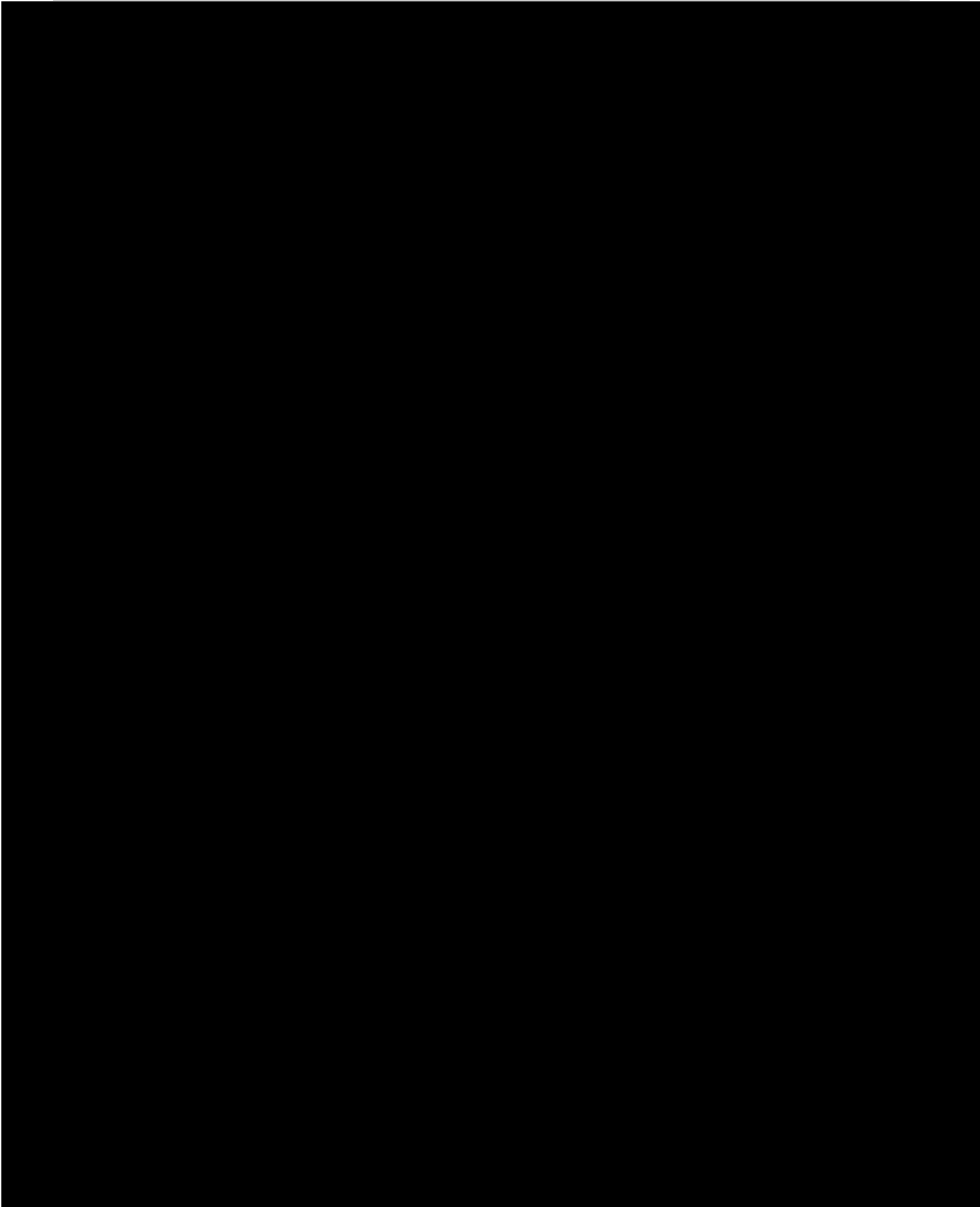


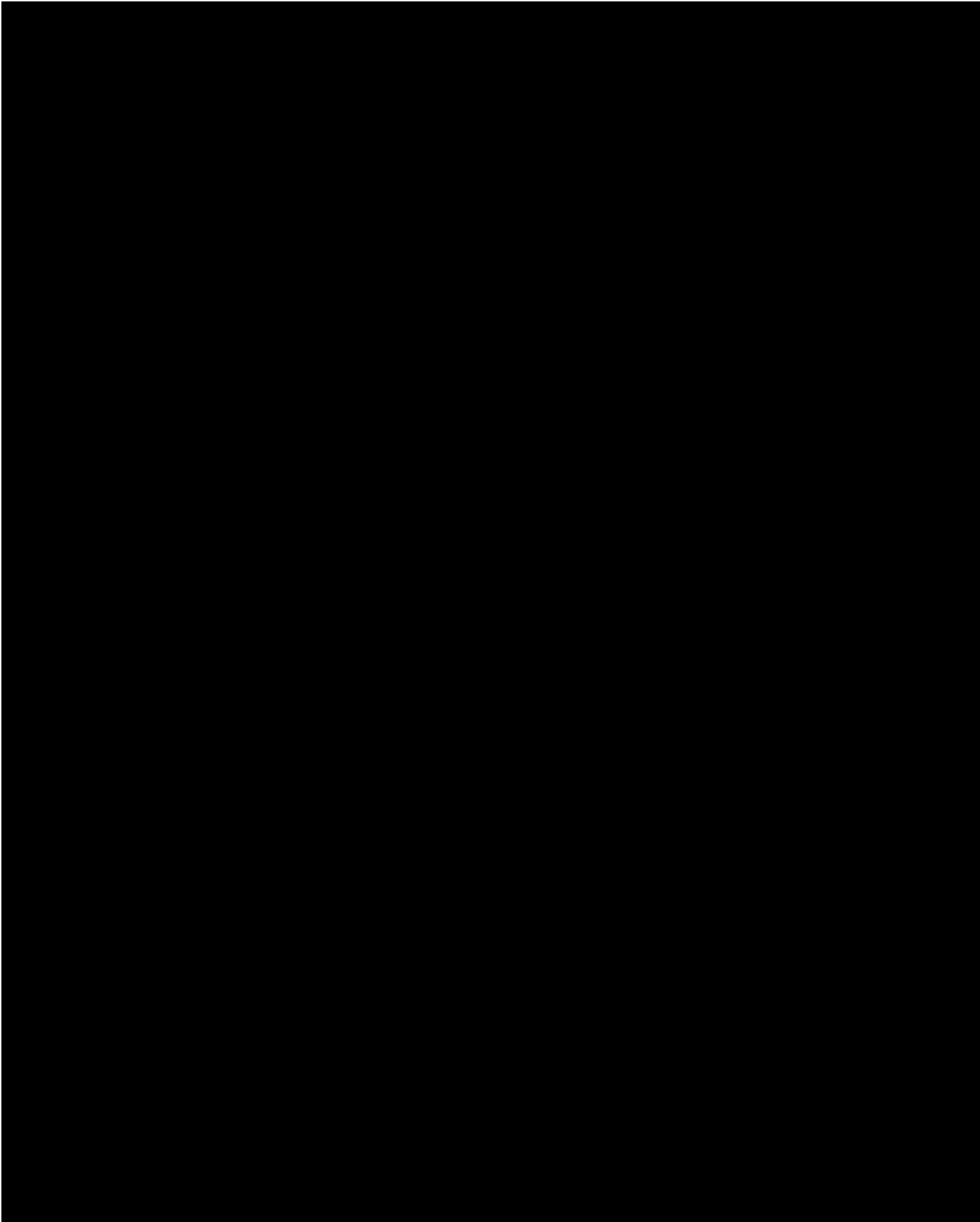


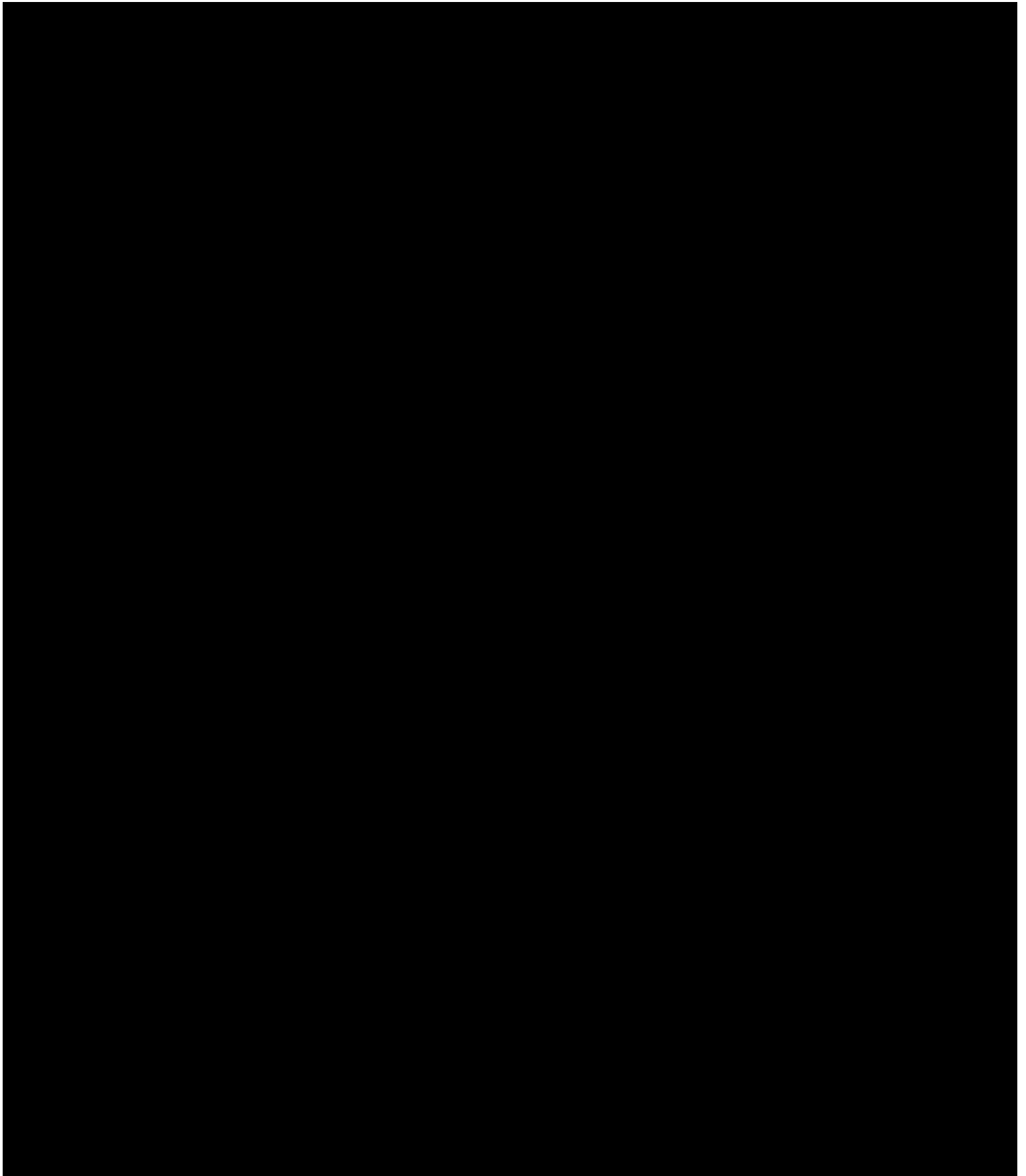


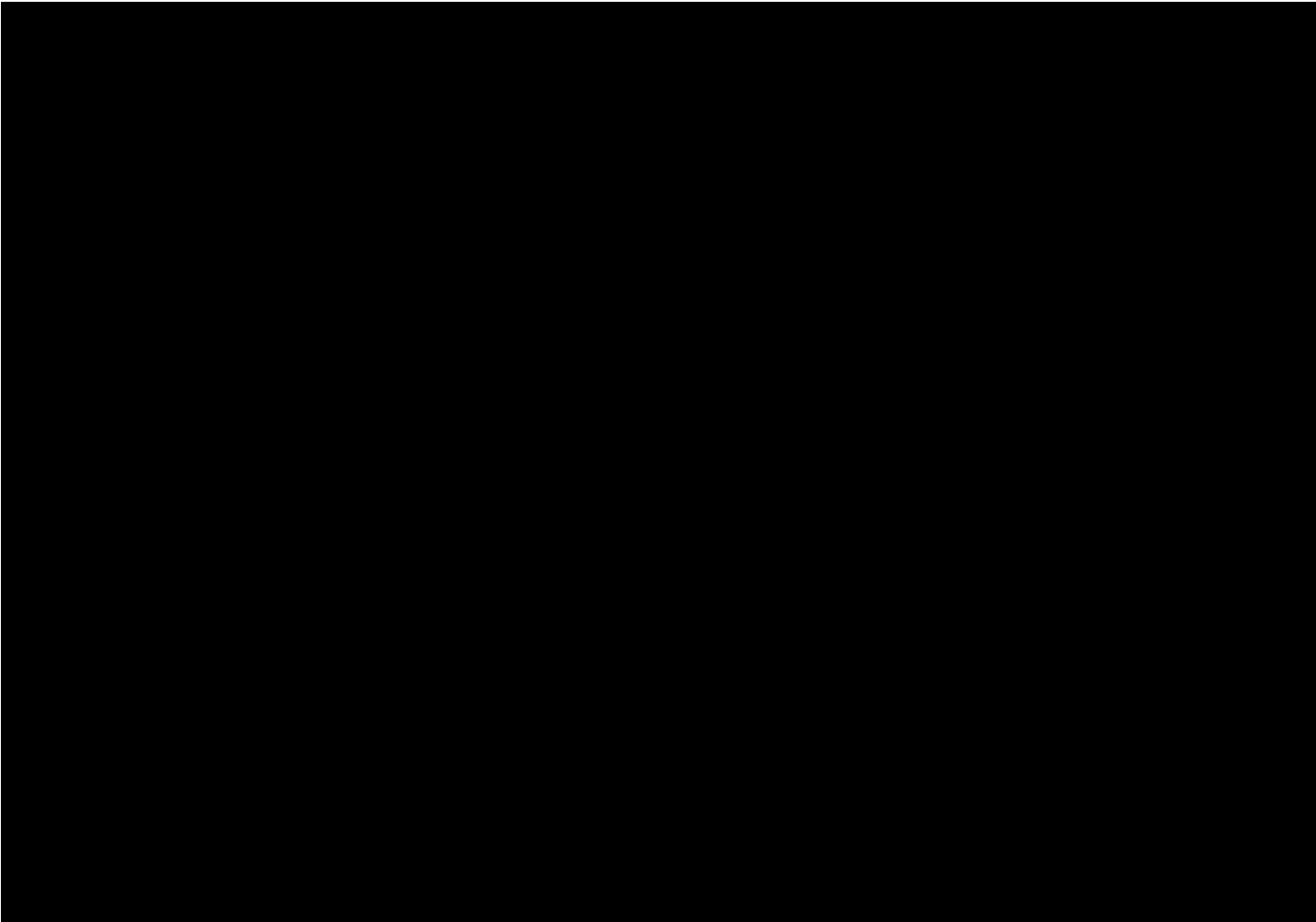




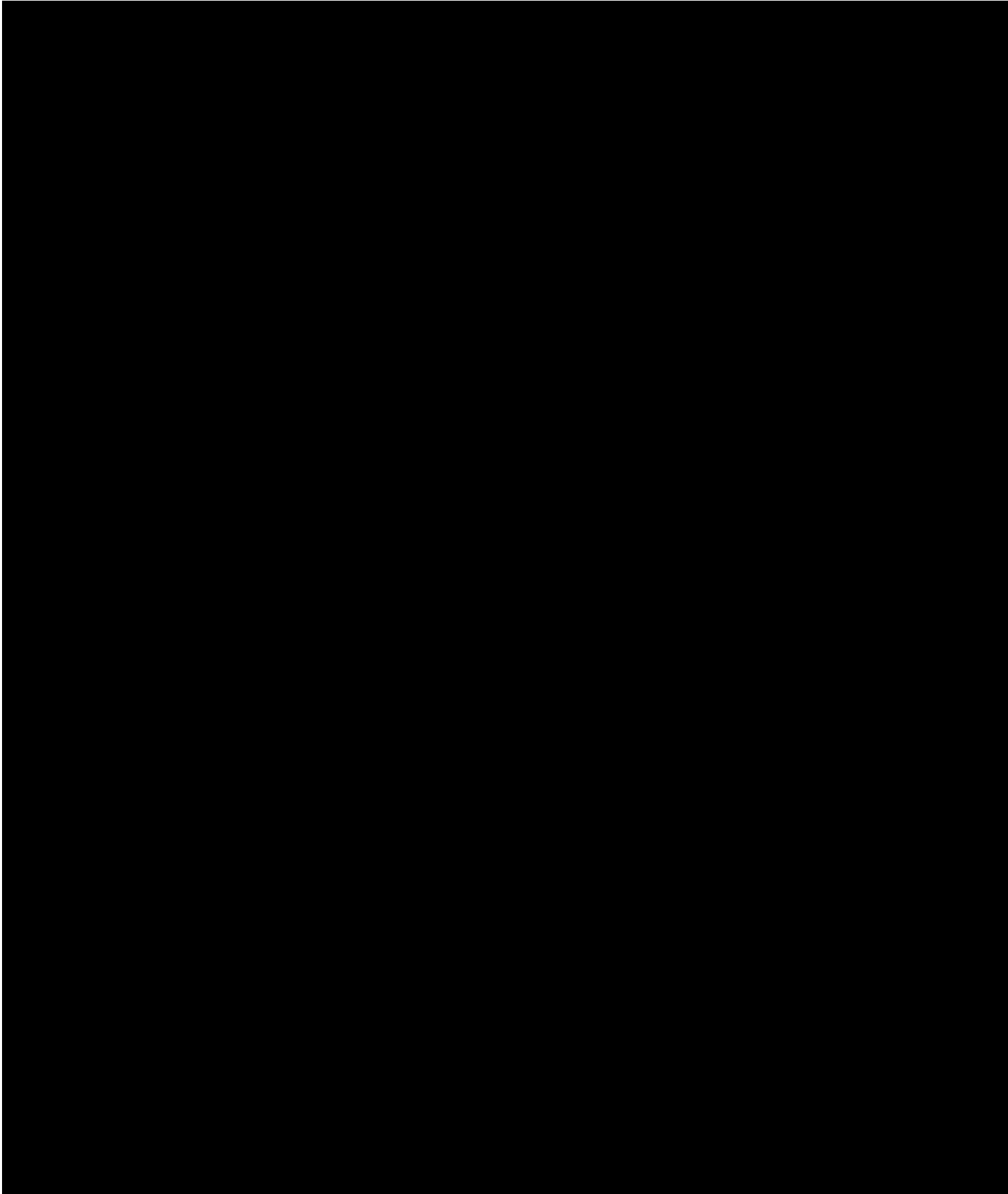


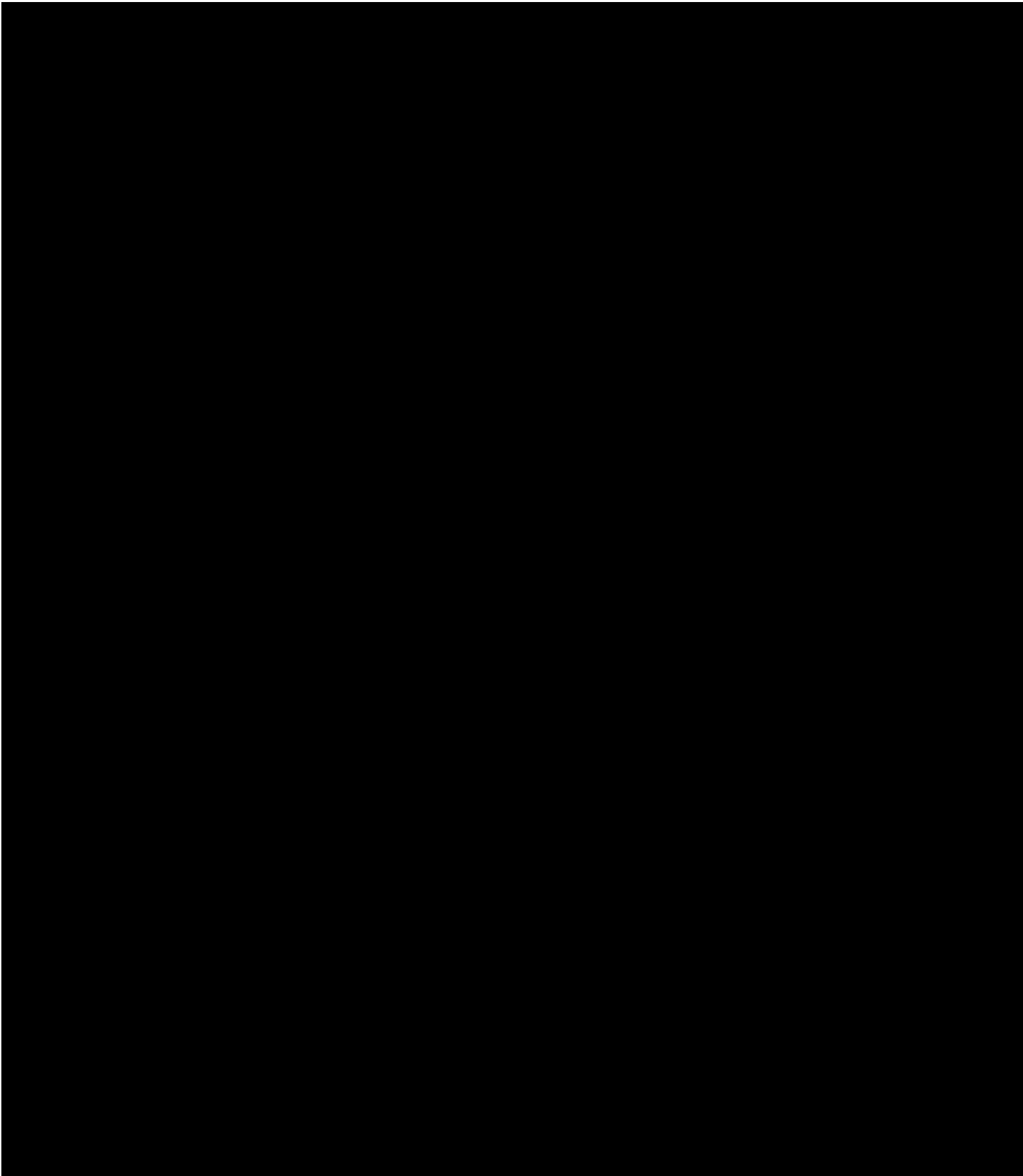


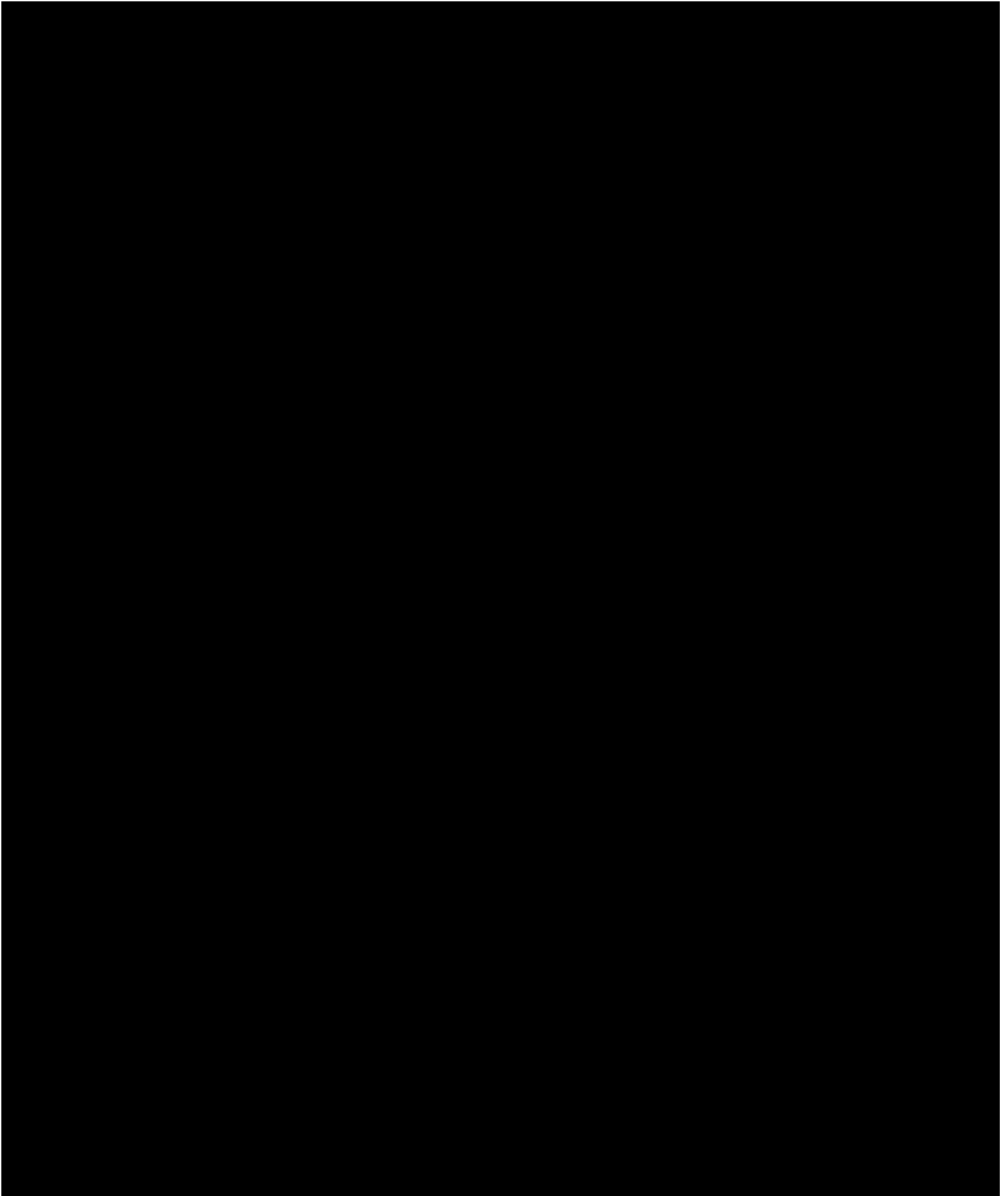


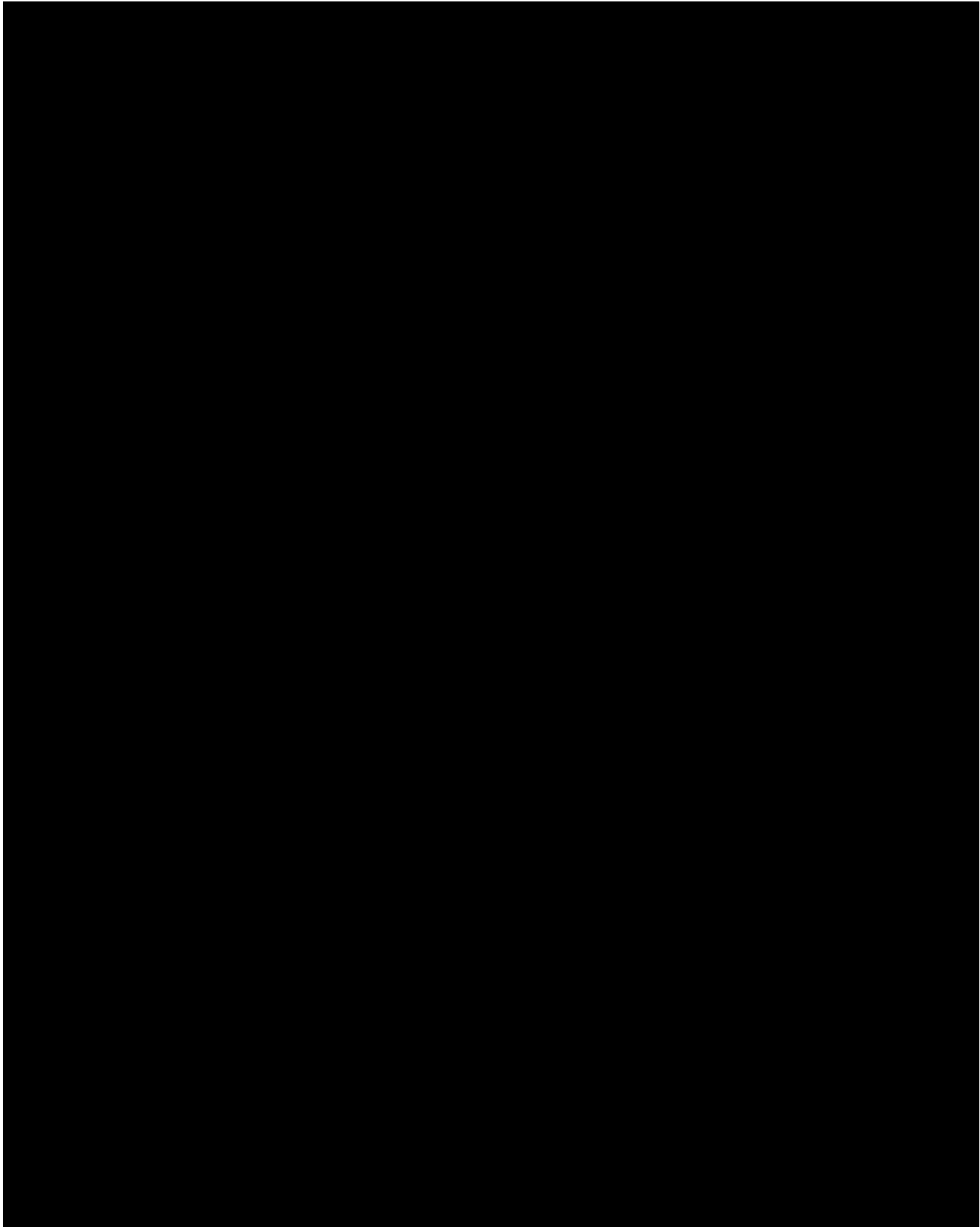


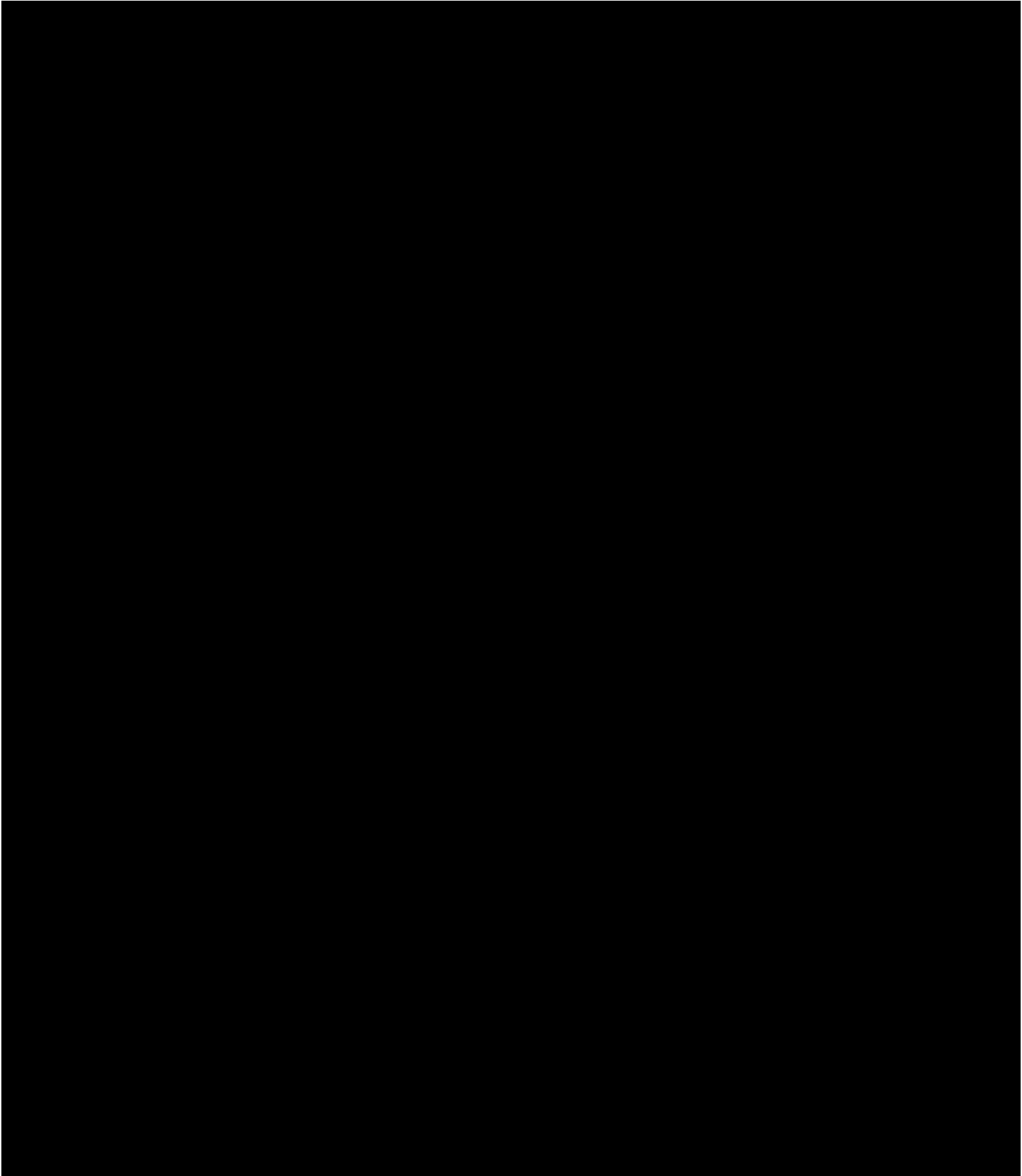


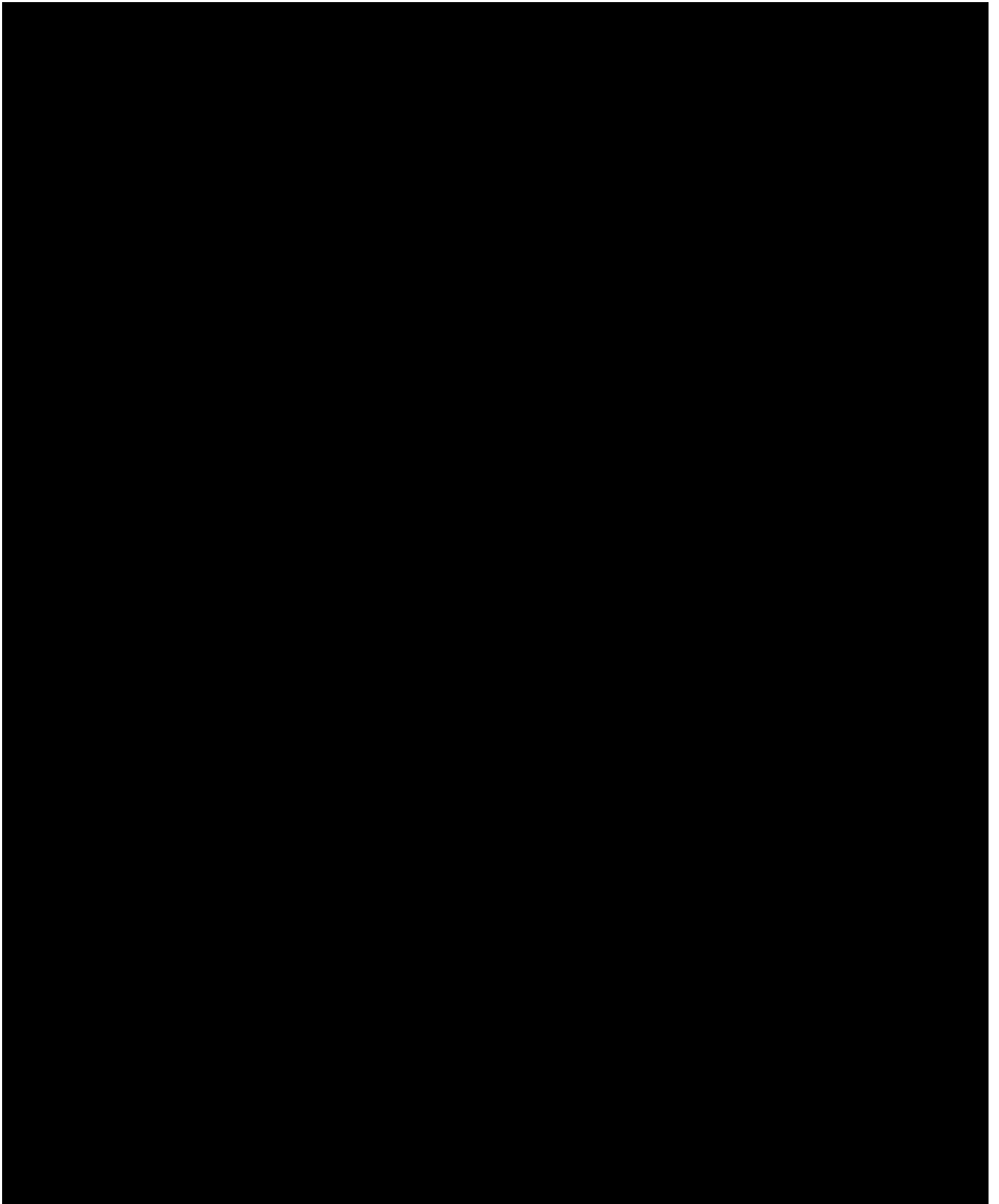


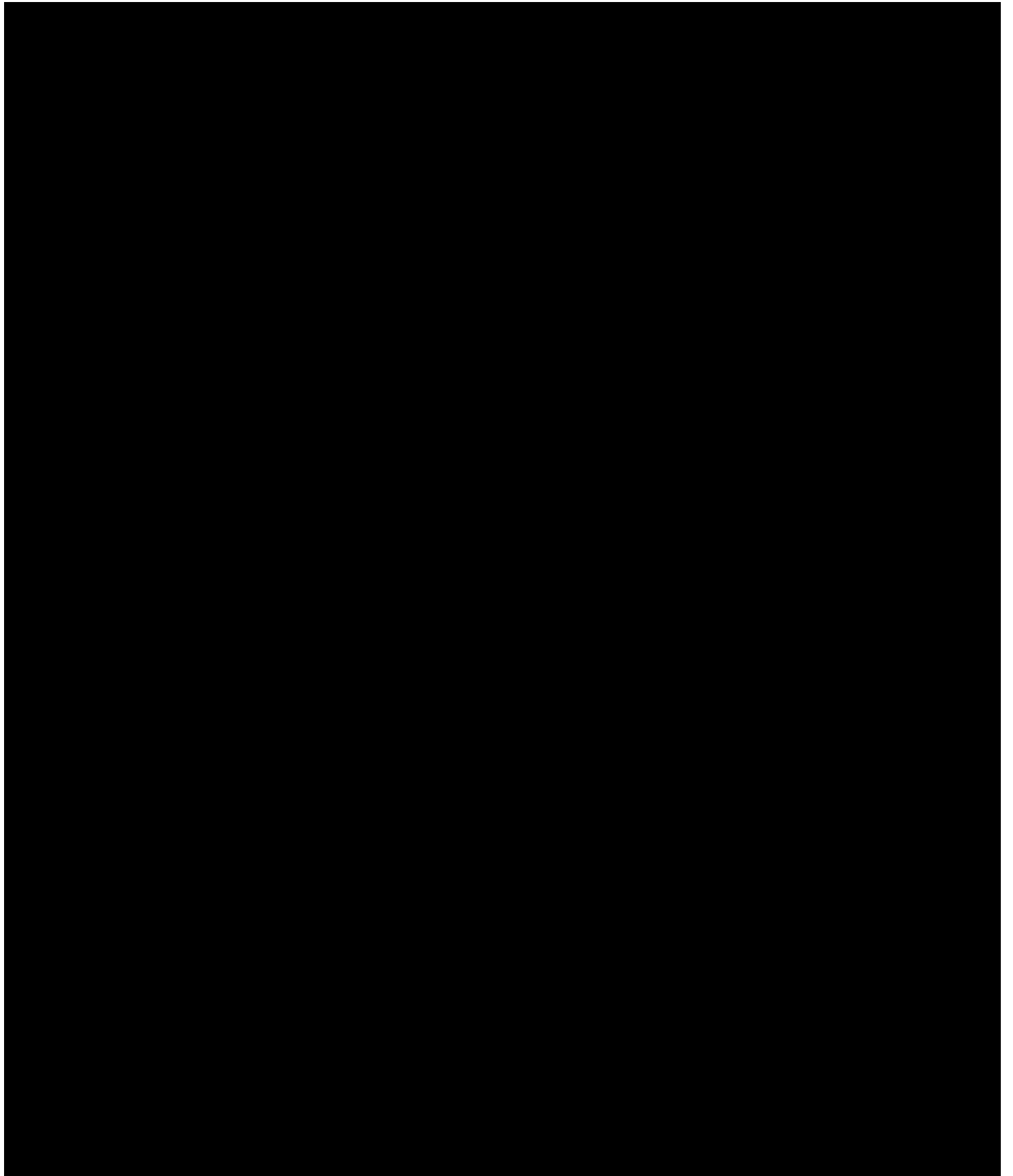


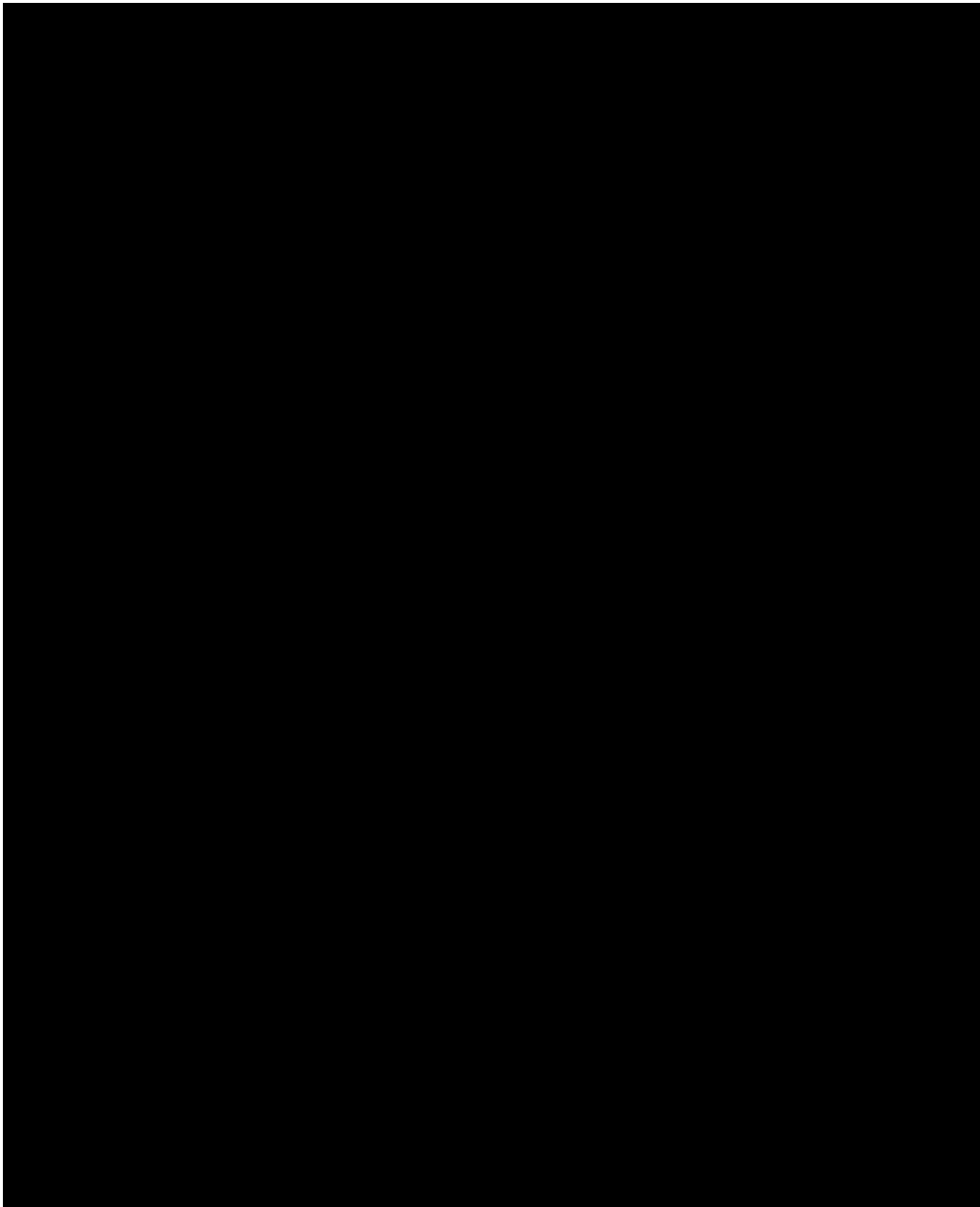


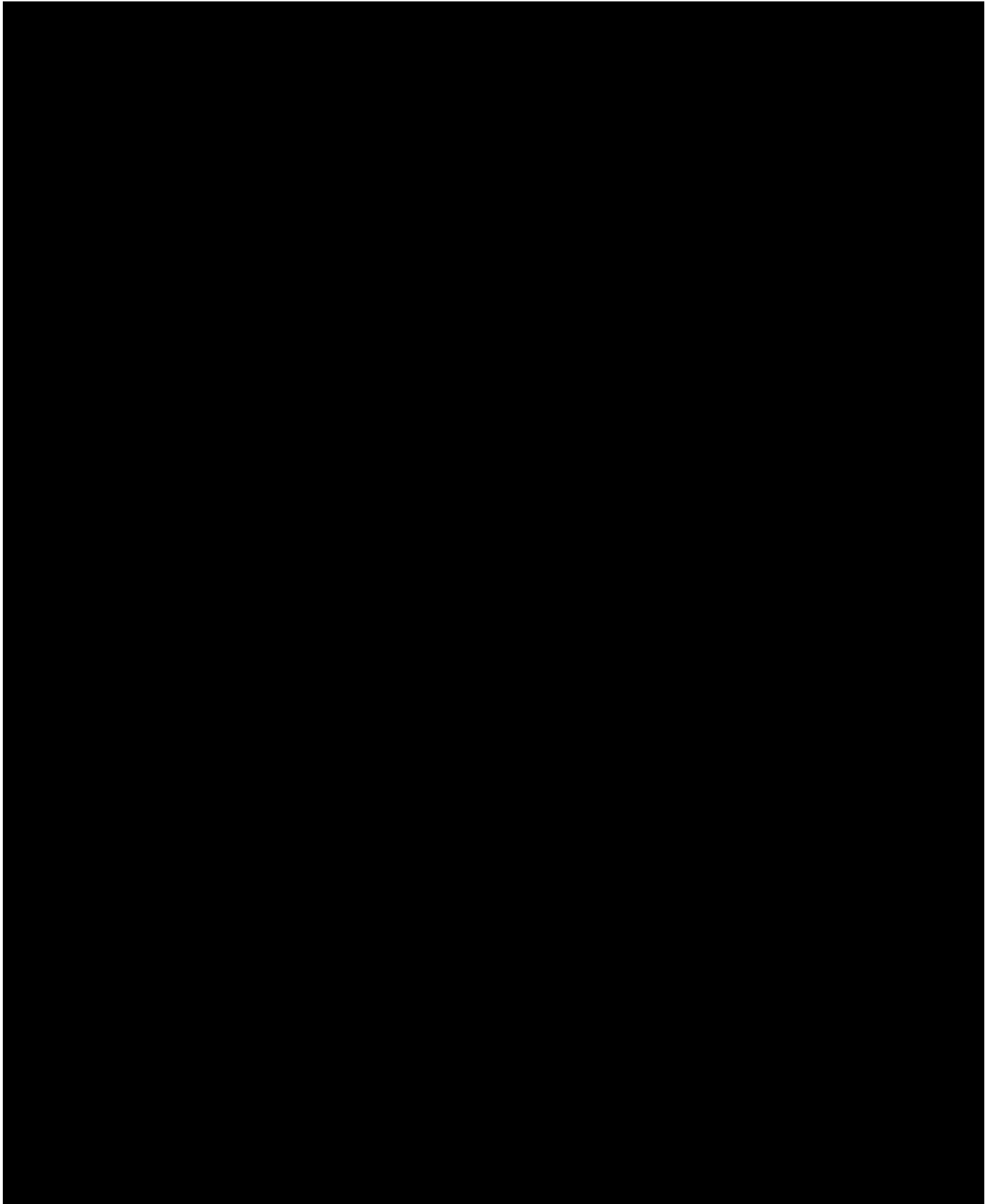


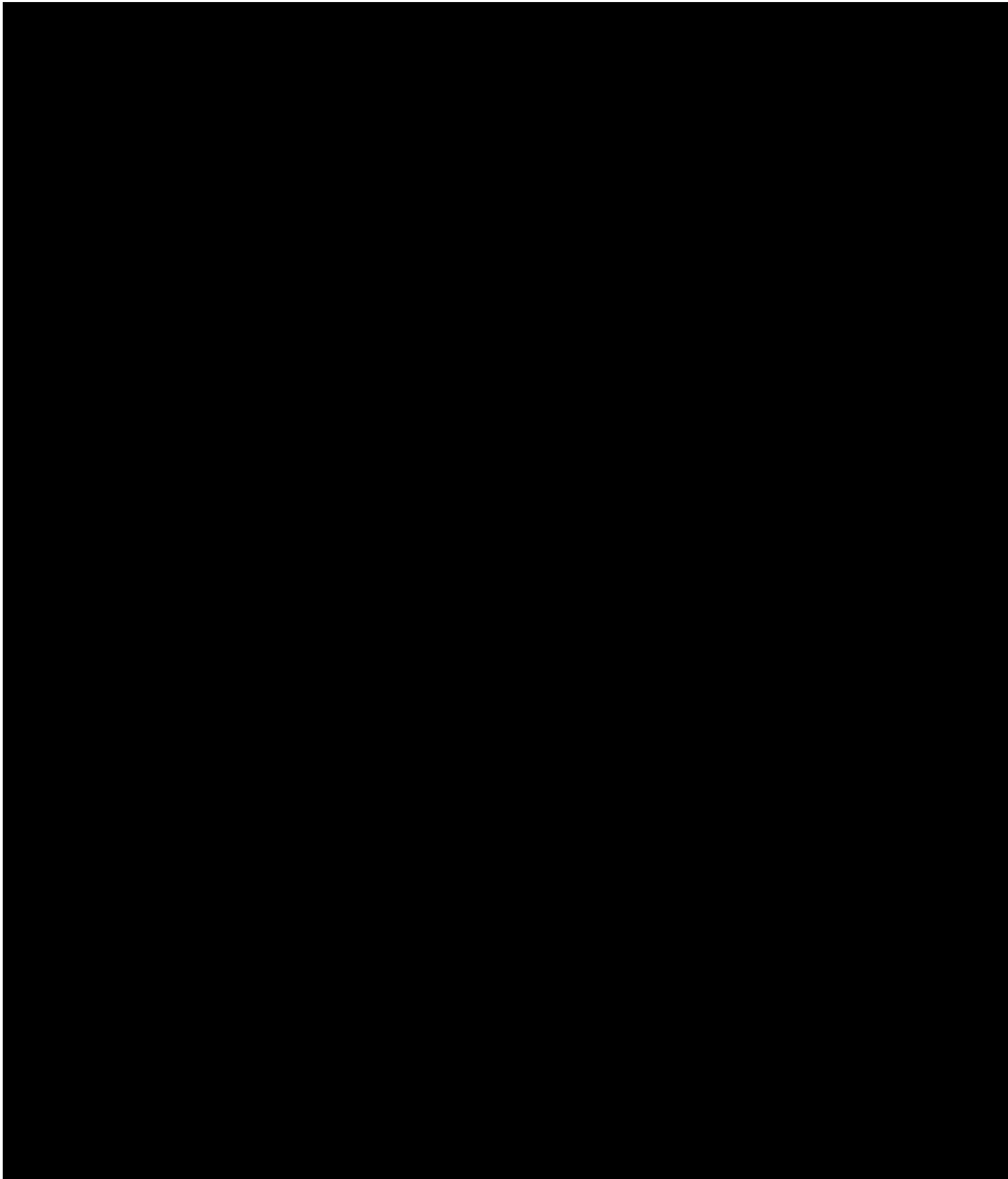


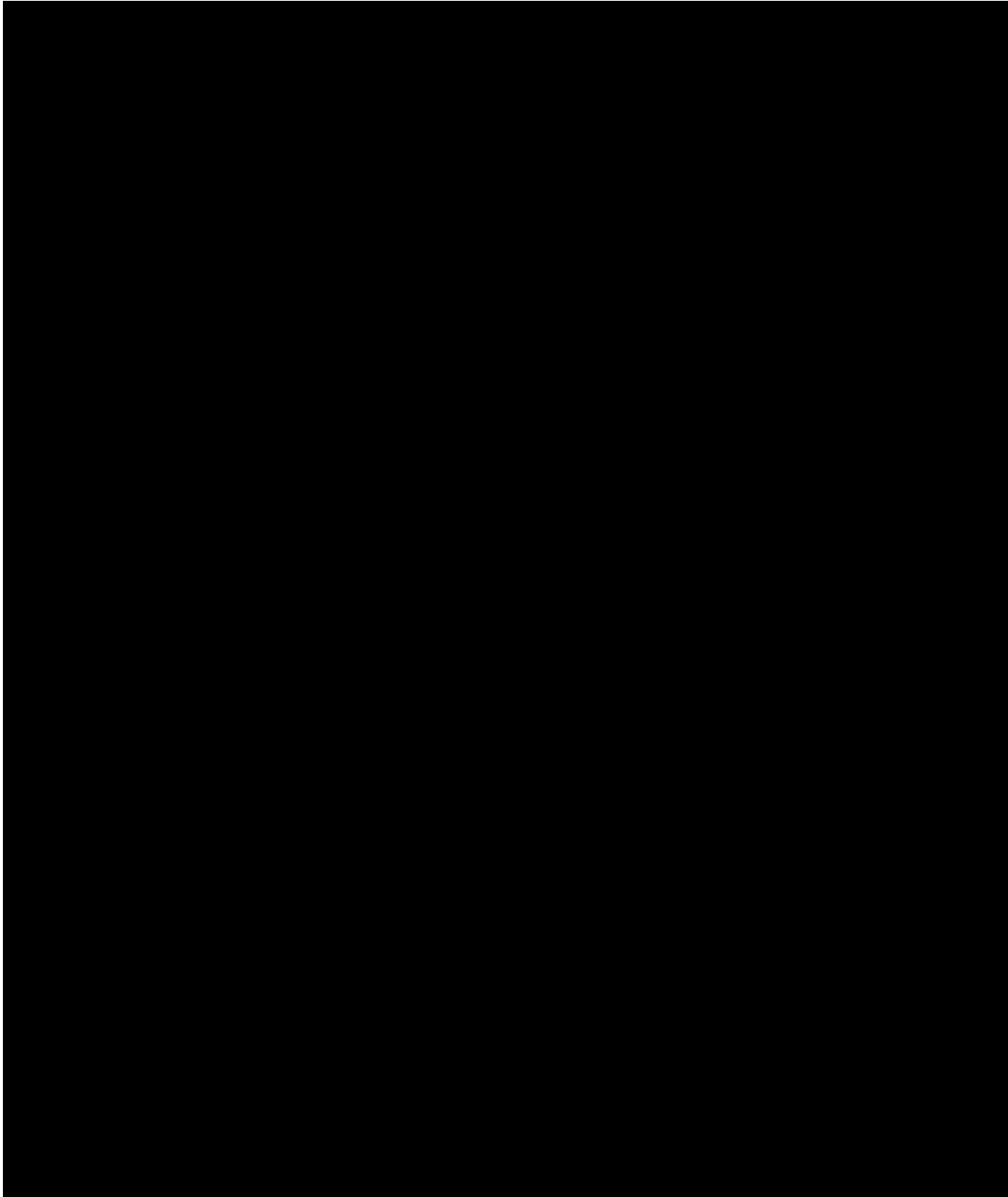


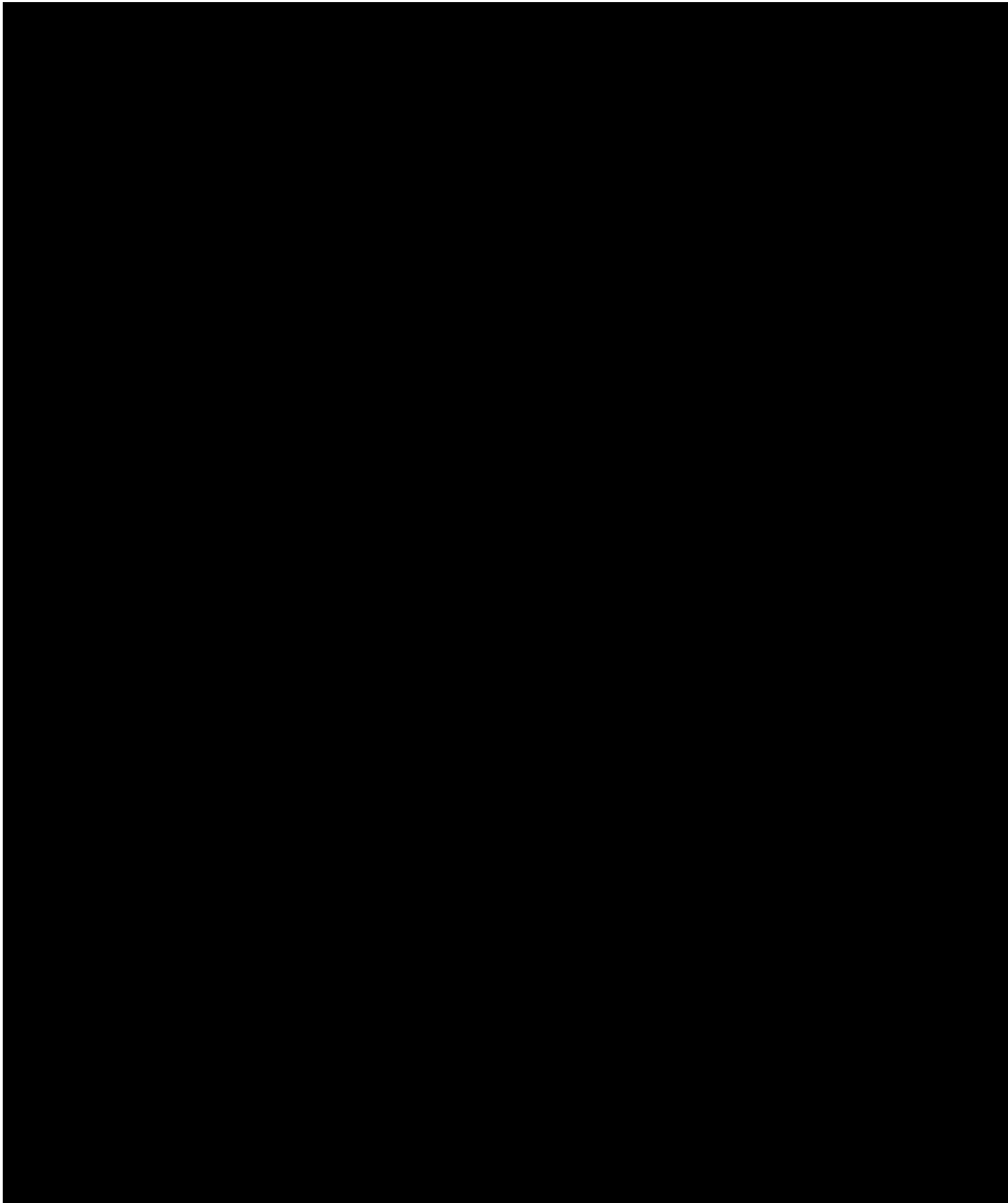


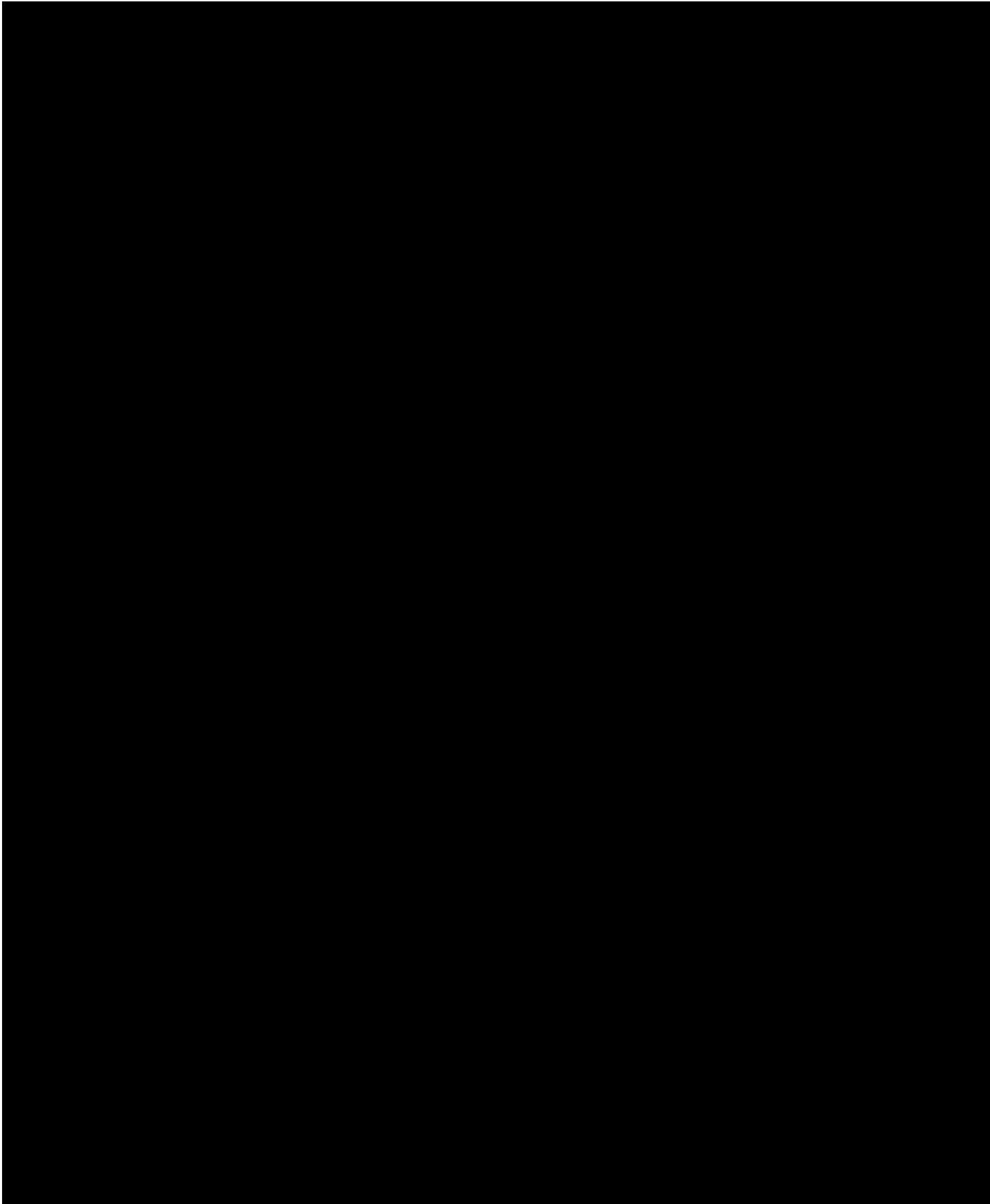


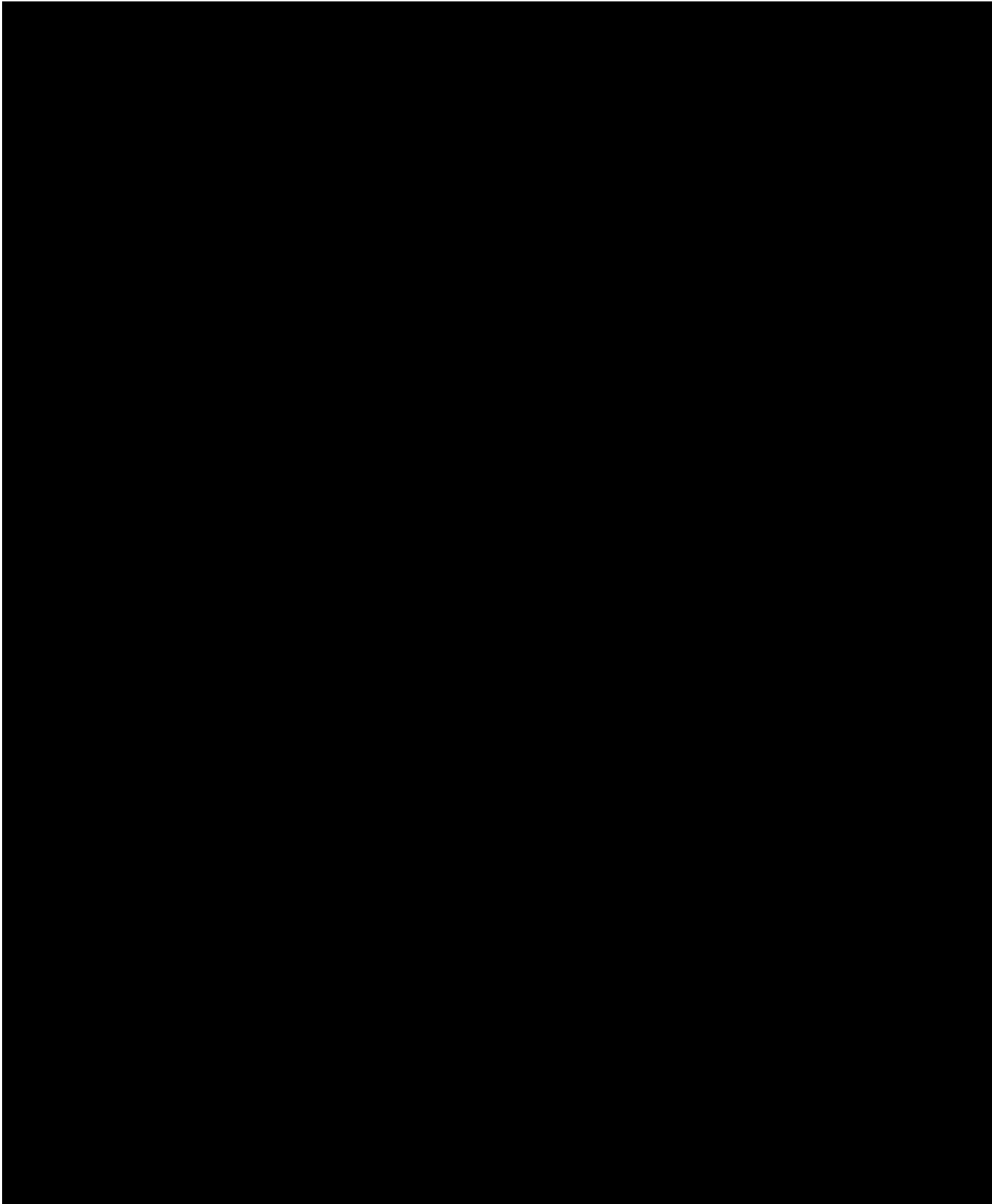


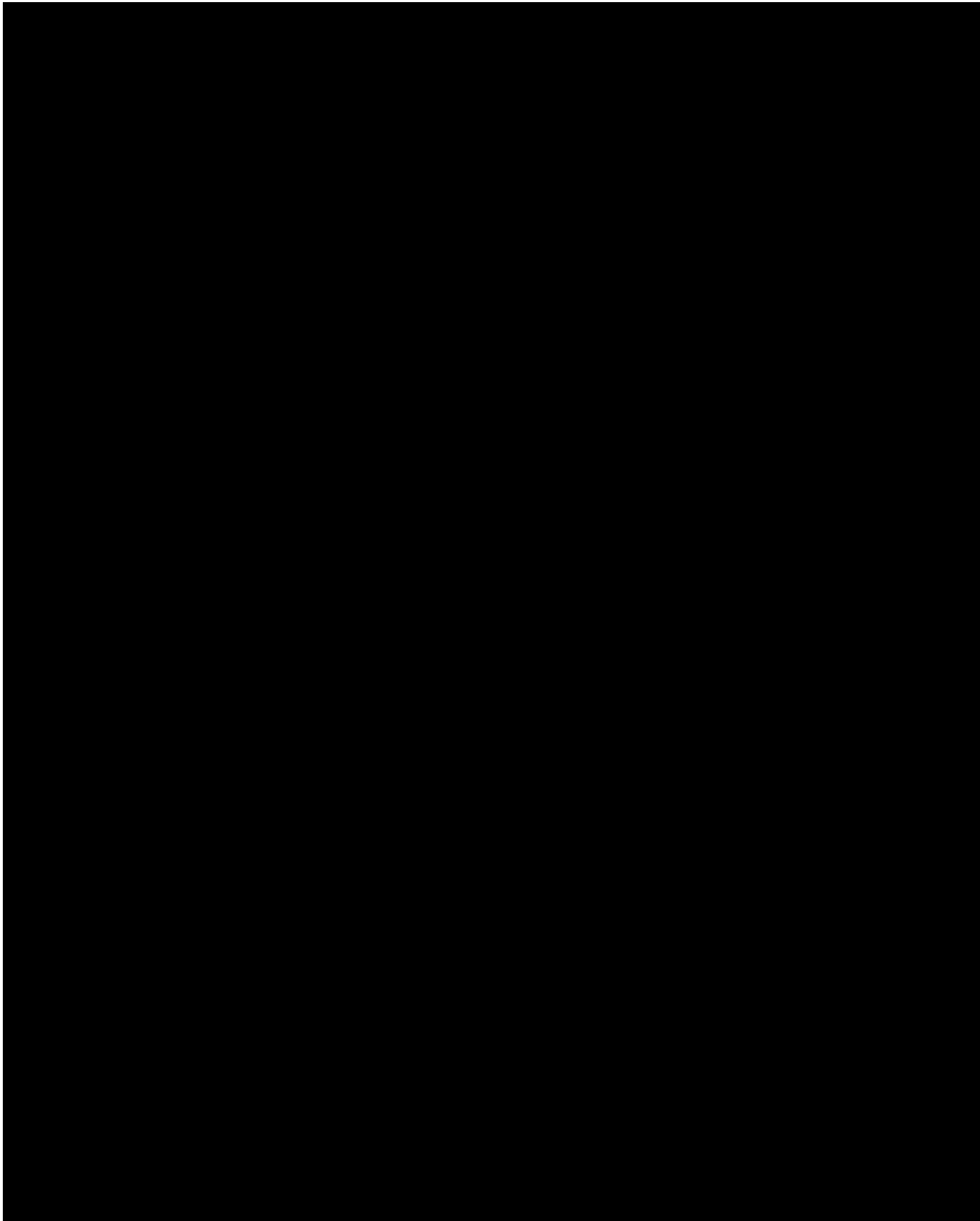


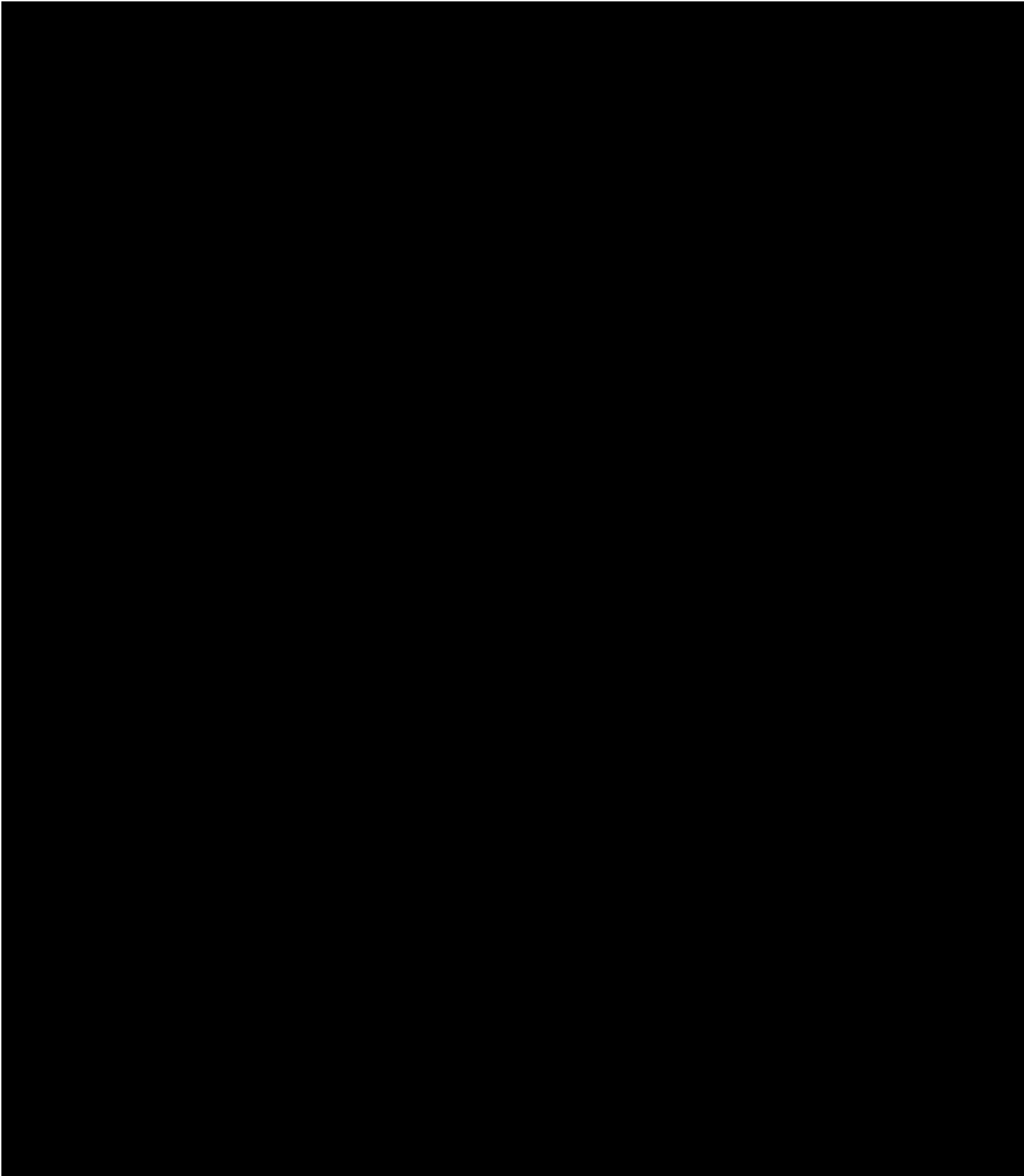


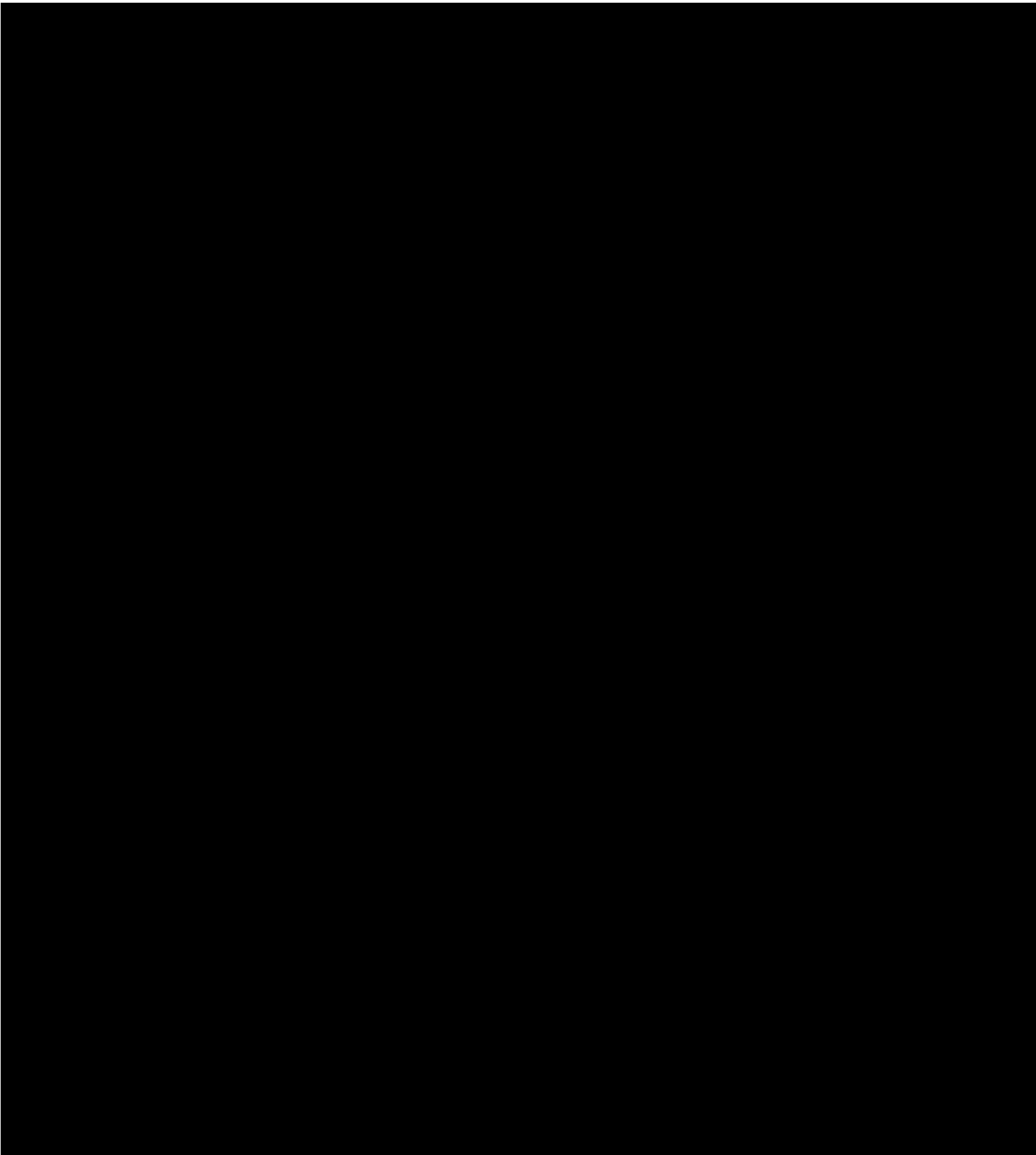


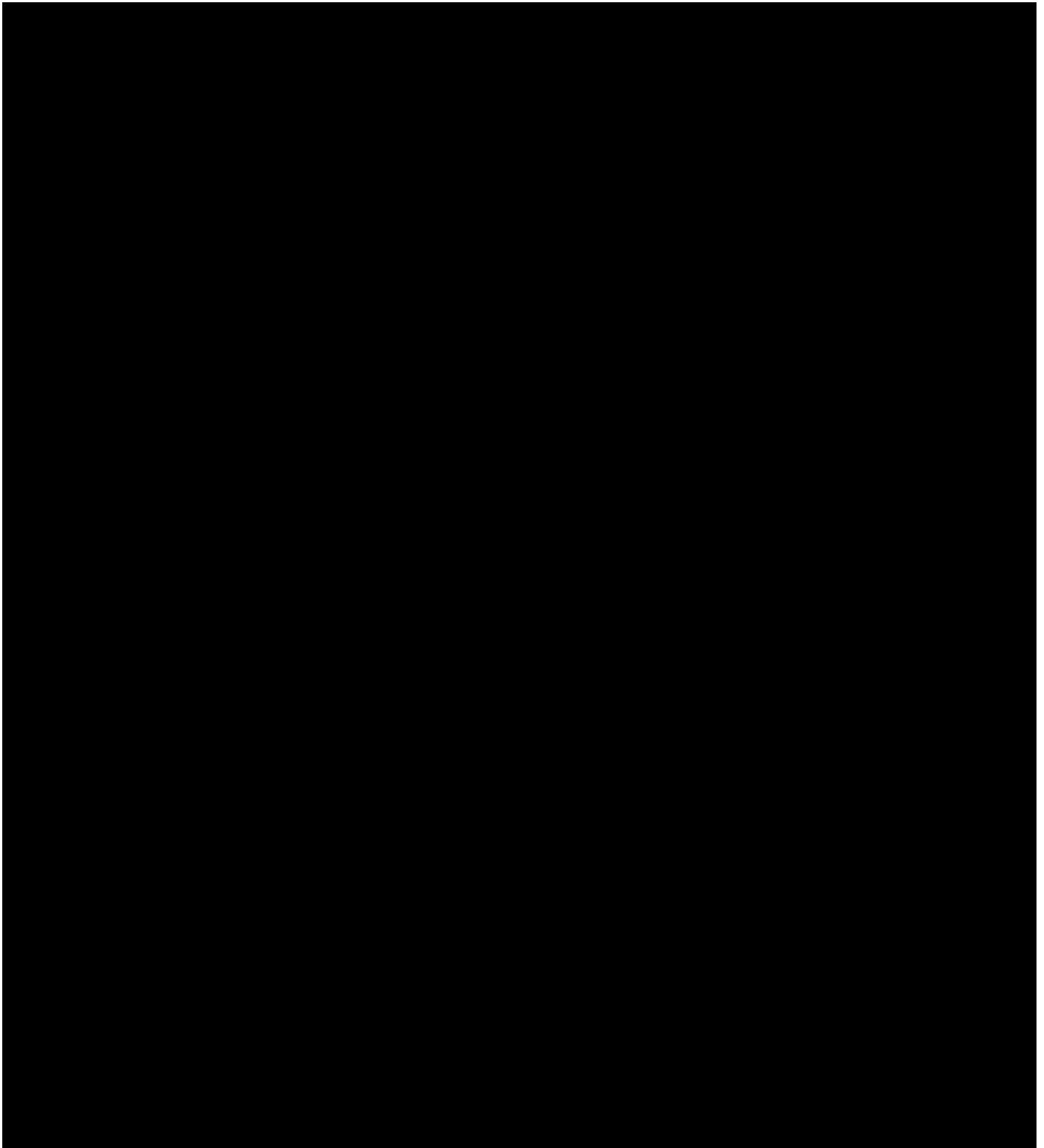












2.7.2.1.4.4.2 Issue Tracking Workflow

A sample Issue Tracking Workflow is shown below. The ngORCA actual workflows will be customized to meet your needs. After the issue is created and assigned to a team leader, it

undergoes an information gathering process. The result may be that the root cause is identified and the team begins to work on the resolution. In the testing phase or even once considered resolved, it may be determined that more information, engineering and testing is required. It is even possible that circumstances in the field warrant the issue to be reopened. Less critical issues may be postponed but will remain in the system to be tracked until resolved. Whatever the path, JIRA tracks the progress with reports identifying how long an issue has been open and what activities have occurred. ngORCA stakeholders will have access to the system to track and monitor progress.

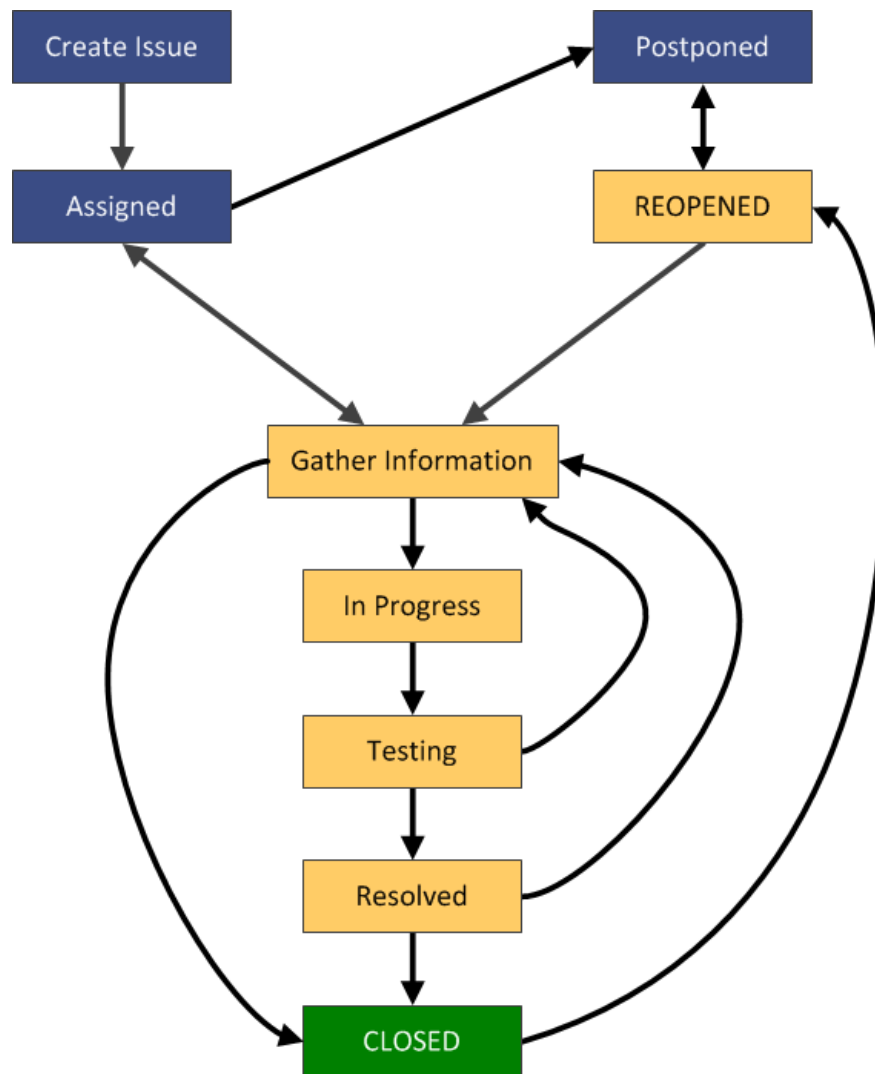
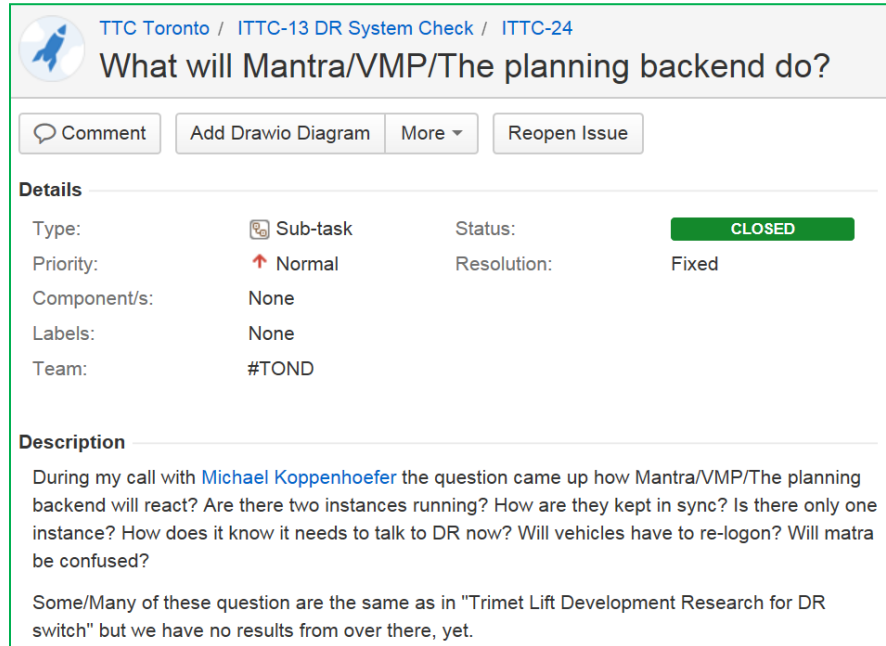


Figure 2-4: Example JIRA Workflow

2.7.2.1.4.4.3 JIRA Issue Details

Shown below is a typical issue dashboard. This issue was a concern about how the backend system will react during the Disaster Recovery system, System Check. As you can see, this was a subtask of the Disaster Recovery (DR) system check and assigned to the TOND team.

Users can add comments, change the issue, add drawings, attach documents and more.



TTC Toronto / ITTC-13 DR System Check / ITTC-24

What will Mantra/VMP/The planning backend do?

[Comment](#)
[Add Drawio Diagram](#)
[More ▾](#)
[Reopen Issue](#)

Details

Type:	Sub-task	Status:	CLOSED
Priority:	Normal	Resolution:	Fixed
Component/s:	None		
Labels:	None		
Team:	#TOND		

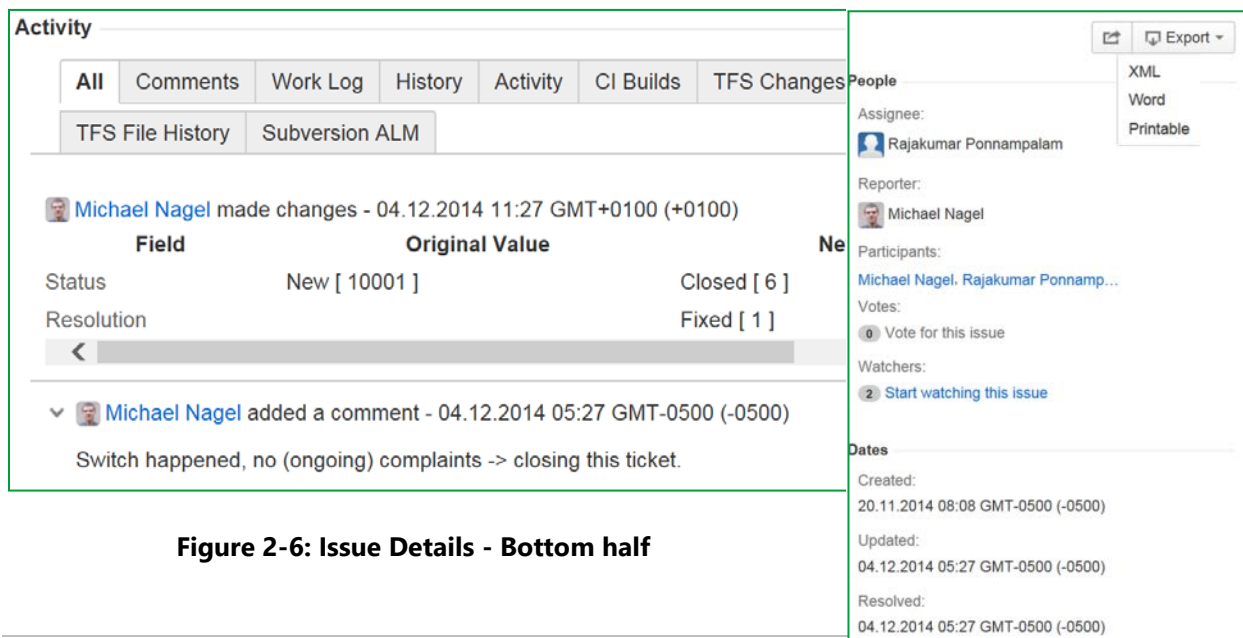
Description

During my call with [Michael Koppenhoefer](#) the question came up how Mantra/VMP/The planning backend will react? Are there two instances running? How are they kept in sync? Is there only one instance? How does it know it needs to talk to DR now? Will vehicles have to re-login? Will matra be confused?

Some/Many of these question are the same as in "Trimet Lift Development Research for DR switch" but we have no results from over there, yet.

Figure 2-5: Issue Details - Top half

Below, the activity tabs show Michael Nagel made a comment as he researched the issue. The switchover worked just fine and the issue was closed.



Activity

[All](#)
[Comments](#)
[Work Log](#)
[History](#)
[Activity](#)
[CI Builds](#)
[TFS Changes](#)
[TFS File History](#)
[Subversion ALM](#)

[Michael Nagel](#) made changes - 04.12.2014 11:27 GMT+0100 (+0100)

Field	Original Value	New Value
Status	New [10001]	Closed [6]
Resolution		Fixed [1]

[Michael Nagel](#) added a comment - 04.12.2014 05:27 GMT-0500 (-0500)
 Switch happened, no (ongoing) complaints -> closing this ticket.

People

Assignee: [Rajakumar Ponnampalam](#)

Reporter: [Michael Nagel](#)

Participants: [Michael Nagel](#), [Rajakumar Ponnampalam](#)

Votes: 0

Watchers: 2

[Start watching this issue](#)

Dates

Created: 20.11.2014 08:08 GMT-0500 (-0500)

Updated: 04.12.2014 05:27 GMT-0500 (-0500)

Resolved: 04.12.2014 05:27 GMT-0500 (-0500)

Figure 2-6: Issue Details - Bottom half

More features are shown in this section broken out from the right side of the screen.

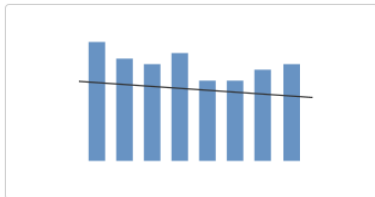
Starting at the top you can see how the data can be exported as XML, WORD and printable format.

Created by Michael Nagel and assigned to Raja, this issue has 2 watchers. The two individuals signed up as watchers and receive emails whenever activity occurs. Authorized ORCA personnel, can click on the field and add themselves as watchers. They can also review the history and contribute with comments.

The date the issue was created, last updated and resolved is also provided.

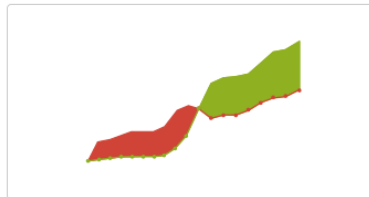
2.7.2.1.4.4.4 Reports

JIRA provides built in reports useful for analyzing trends and status.



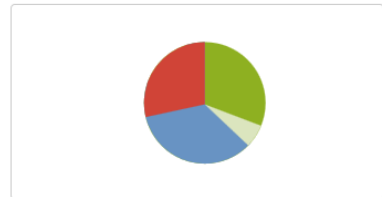
Average Age Report

Shows the average age of unresolved issues for a project or filter. This helps you see whether your backlog is being kept up to date.



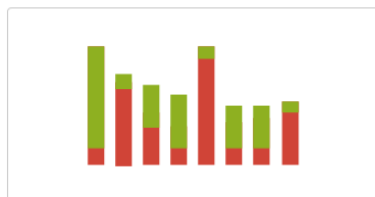
Created vs. Resolved Issues Report

Maps created issues versus resolved issues over a period of time. This can help you understand whether your overall backlog is growing or shrinking.



Pie Chart Report

Shows a pie chart of issues for a project/filter grouped by a specified field. This helps you see the breakdown of a set of issues, at a glance.



Recently Created Issues Report

Shows the number of issues created over a period of time for a project/filter, and how many were resolved. This helps you understand if your team is keeping up with incoming work.



Resolution Time Report

Shows the length of time taken to resolve a set of issues for a project/filter. This helps you identify trends and incidents that you can investigate further.



Single Level Group By Report

Shows issues grouped by a particular field for a filter. This helps you group search results by a field and see the overall status of each group.

As seen below, the ngORCA JIRA Issue Tracking system can include the reports listed. Custom reports can be easily defined and saved. All reports are exportable to spreadsheet compatible files, PDF and printable.

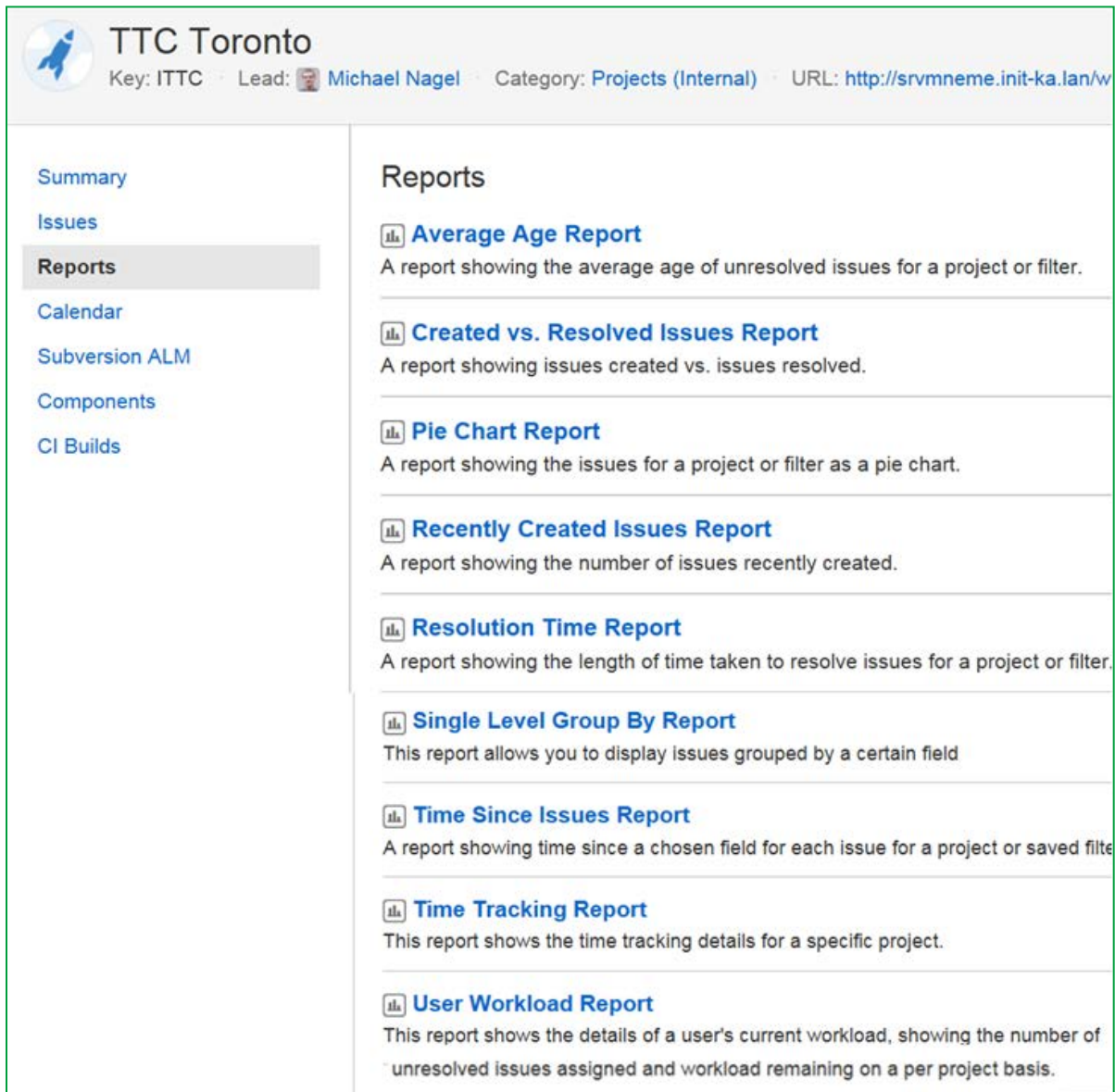


Figure 2-7: JIRA Report List

2.7.2.2 Design Reviews & Approvals

INIT's project management and technical team possess extensive experience in the design of complex, large-scale account-based fare collection systems. Additionally, INIT has partnered with a UX/UI firm to help ensure oversight and implementation of common design practices and guiding principles for key user interface elements.

While time-intensive for many stakeholders, INIT has found that a comprehensive design review process is one of the keys to mitigating overall project risk. As part of this process we will address all functional and technical requirements, review possible scope changes or other

considerations, identify unknown risks, and maintain a clear path of the schedule's requirements and dependencies.

The first phase of the ngORCA project is comprised of three specific design reviews: Conceptual (CDR), Preliminary (PDR), and Final (FDR). These formal design reviews will include the review of System Design Documentation, hardware samples, and functional software demonstrations of INIT's existing comparative systems or prototypes. While these appear to be laid out linearly, the various components of the system where these designs apply will proceed at their own individual pace. This will allow for some items to develop over time along with the design of UI/UX.

To appropriately progress the design of the system and to limit risk to the overall project schedule, INIT proposes to allow the documentation to run in parallel paths. For the purposes of simplicity at the start, INIT proposes to submit its design documentation in two packages; the first will be inclusive of system design documents that are further progressed based on INIT's existing implementations that are in similar scope to ngORCA whereas the second package is meant to allow for additional time for newer areas of the proposed system or for the occurrence of information gathering sessions (e.g. installation, training, etc.) with the Agencies for inclusion in the reference documentation.

At each stage the Agencies will formally approve INIT's proposed design before moving to the next phase of its evolution; however, due to the parsing of the system design packages, different documents may progress sooner than others. In so doing, INIT will validate that the ngORCA system elements are on track to meeting the technical, functional, and operational adequacy requirements of design and that the approach undertaken will sufficiently track against the requirements of the Scope Baseline as stated for delivery in the project schedule. Additionally, by progressing design that can be achieved in earlier stages, development efforts may also be initiated without additional or unnecessary risk.

In addition to submitting all the specified materials during the design phases, INIT will also submit a Requirements Traceability Matrix (RTM). The RTM will outline how the design is addressed in each of the specified requirements. The RTM will also serve as a risk mitigation tool by ensuring that all the requirements addressed during the design phase are documented and made part of each next phase of the project lifecycle.

2.7.2.2.1 General Requirements

Managing a balance of cost, risk, change, and schedule can be quite challenging. However, addressing and engaging in a thorough and robust design process ensures that all such factors are transparent, known, and documented.

The Design Review Plan will be written with the intention of meeting both the design needs of each particular phase(s) of the project as well as taking into consideration the relative maturity of the subject of the specific document area and the design phase it is being reviewed. In some instances, certain elements will be more advanced than others whereas some may require more clarification in a given design phase than initially planned.

Regardless, in order to successfully move through the design review phase INIT's plan will focus on both quality and efficiency so as to best maximize the project schedule while also adhering to the technical, functional, and program requirements as set forth in the SOW.

The first iteration of the Design Review Plan will be provided within 30 days of NTP and, outline in more detail the format for how the various design review stages will occur. As part of that, INIT will define which documents will include subsequent demonstrations or prototype reviews as part of the stated design review phase.

For tracking and management purposes INIT will provide and maintain a document control tracking sheet. This sheet will outline the design review package for each phase (which is to be submitted not less than 21 calendar days prior to any review meeting); denote the requisite documents, their submission / review / approval state, and the state of approval in the specific design phase. Where applicable INIT will also provide estimates on the level of completion of the document in order to be considered for design approval and also needed for work initiation. Additionally, following review the Agencies will then in turn provide INIT with the first iteration of the design review MIL, documenting any questions, comments, concerns, or requests for clarification.

One of the key documents to be addressed as part of this process is the first iteration of the ORCA Business Rules as this document details the relevant fare structures, revenue sharing and apportionment tied to system launch. The final fare structure configuration will be documented and approved within 120 days of integration testing of the applicable components.

Starting at NTP, as part of each design review stage INIT proposes the parties plan and engage in a series of in-person requirements gathering and design meetings with a frequency appropriate to the subject and resources associated. In some instances, routine SME meetings will be established and carried out through the design phases. INIT proposes the following groups are initiated at a minimum following NTP and discussed as part of the kick-off:

- Training
- Field Services / Equipment Installation
- UI/UX
- Transition
- Inspection and Testing

Additionally, INIT also proposes that the parties engage in in-person design review workshops per phase at the Agency's meeting location. To foster the iterative design needed for the schedule, INIT proposes a series of workshops across the design phase to accommodate functional area needs and personnel schedules which may take 3-6 weeks per phase. As part of this design review, INIT supports all stakeholder groups' participation. The specific structure of the workshops will be detailed further in the design review plan.

For a period of 1-2 week's within the design workshop window, INIT will bring additional technical resources (e.g. hardware and software engineers) from other locations outside of our Seattle office, to participate (including vendors where applicable) and engage in "deep-dive" discussions. Taking this approach also extends the capacity for direct small group discussions, brainstorming and other technical clarification methods, as well as address design concerns or considerations in real-time.

As a sample format for CDR, please consider the following high level approach:

- Week 1: Equipment installation, IT Architecture, Transition
- Week 2: UI/UX and Training
- Week 3: Back Office Applications, Testing and Transition
- Week 4: Back Office Applications, Integration

From that high level approach we would then begin to list the relevant CDRLs within each week and see how the overall load and resourcing works out; what vendors are needed, which Agency personnel are required, and what additional technical resources from external INIT locations. For example, for week 2 might require INIT IT resources from Chesapeake, VA while week's 4 and 5 may require our back office development SMEs. Based on those needs we would coordinate travel and schedules accordingly.

INIT believes that a combination of these design approach discussions will ensure frequent and routine engagement where possible while also providing the Agencies with direct access to our engineers for critical decision making and clarification. Where possible, INIT can also supplement the in-person/on-site meetings with follow on tele/web-conferencing as needed or required.

During each phase INIT will strive to ensure feedback is heard, logged, and addressed by all those impacted. In so doing we believe we can both mitigate the need for rework as an outcome of unclear and/or undocumented requirements or business needs and as such avoid missing detail that might otherwise not be known until implementation - which becomes more costly as time in the project has progressed. It is expected that each document will undergo various iterations within each design phase. If the design document packages are revised as required they will be resubmitted within 14 days of completion of the design review meetings.

Those discussions points, issues identified, and decisions made will be documented and addressed during the specified design meetings where possible in the MIL. Residual issues will continue to be tracked in the MIL and actively worked until resolved during future iterations of the design review process. The Agencies will be responsible for final closure of all logged issues in the MIL. Following successful closure of identified issues, the review package can be made available for Agency approval.

2.7.2.2.2 Conceptual Design Review

The Conceptual Design Review (CDR) will meet the objectives outlined in the RFP of familiarizing the ORCA agencies with the proposed system design. As CDR occurs in the very early stages of the project, certain documents will require the design review workshop in order to detail certain sections of the submittal documents. Such sections will be referenced with placeholders.

Following the submission of CDR, the Agencies will have 21 calendar days to review and comment on each specific document prior to the occurrence of the design workshop. Agency comments will be tracked in the Master Issues List (MIL) which is uploaded to the ngORCA project collaboration site where the Agencies can review at their convenience. In so doing the Agencies can further guide as appropriate the progress and structure of the design approach.

INIT and the Agencies will participate in CDR workshops, at Agency-designated facilities. During these workshops INIT will have onsite relevant subject matter experts (SMEs). The aim of the workshop will be to have clear direction and understanding of the necessary next steps for the Preliminary Design Review (PDR) submission as well as identify any gaps, actions, next steps needed to close out the CDR phase.

2.7.2.2.3 Preliminary Design Review

Following the CDR approvals INIT will begin the planning and delivery of the system documentation necessary for the Preliminary Design Review (PDR) phase.

For the PDR submission INIT will continue to update all relevant documents and include responses to Agency comments from the MIL to ensure all areas of concern, question, or revision are included and/or addressed from CDR to the extent practicable. Additionally, updates made to the PDR documentation will be done with the intent to provide approximately 75% of the systems design.

Following INIT's submission of PDR documentation the Agencies will again have time to review each submittal and comment as appropriate. INIT and the Agencies will schedule a second workshop in support of PDR, to be held at Agency-designated facilities. During this workshop INIT will bring relevant subject matter experts (SMEs) including but not limited to INIT resources

and key personnel, INIT subcontractors, or other vendors supplying portions of the ngORCA integration.

INIT will provide the following during the PDR:

- Specifications for all proposed equipment
- Narrative descriptions of the major systems and subsystems
- System block diagrams identifying all interfaces between system components, including external systems that will not be provided by the INIT but will interface with the system
- Responsibilities and schedule for completion of detailed system interface definitions
- Software designs, including software block diagrams for key system components
- INIT's understanding of the intended operations and maintenance environment
- Master schedule to review and discuss primary milestones and risks
- Customer and operator user interface specifications, flow charts, and messages for all Contractor-supplied devices and systems, including accommodations for all boundary and error conditions
- Interface and communication specifications for all internal and external system interfaces
- Specifications for all configuration control systems
- Specifications for access control systems supporting back office operations;
- Requirements traceability matrix

Prior to the PDR, INIT will conduct site visits, station inspections, and additional requirements analysis activities as needed to further advance the system design documentation.

As with CDR updates for PDR, following the PDR workshop INIT will review the document MIL's and update the necessary materials accordingly and in preparation for FDR. Ideally, the framework and necessary steps for FDR at this stage will become clearer and requirements tied closely to the build phase planning.

2.7.2.2.4 Final Design Review

To prepare for FDR, the narrower requirements may necessitate sub groups to continue to break off so that clear outcomes and use cases can be illustrated in between the design review formal workshops. The FDR workshop will be scheduled to follow the FDR submittal, for the review and confirmation of the systems intended design.

The requirements of this review will be INITs provision of the final design updates and that all comments, questions, or clarifications from the MIL's provided by the Agencies are addressed and all action items closed out and validation that the UX/UI principles and guidelines have been adhered to.

During this final formal design workshop INIT will bring relevant subject matter experts (SMEs) including but not limited to INIT key personnel, subcontractors, or other vendors critical to the eFare integration. The FDR meetings will seek to close as many gaps as possible, clarify the last requirements necessary for the system's final design and set the framework for development, procurement, fabrication, installation, testing, training, implementation, and deployment.

Activities of the FDR will include the following:

- Schedule compliance review and discussion of variances or delays
- Assembly drawings for all INIT-supplied devices, down to the Lowest Level Replaceable Unit (LLRU)
- Electrical schematic drawings for all INIT-supplied devices
- Preliminary "as-built" drawings and prototypes for all device mounting configurations
- Final system architecture drawings
- Detailed software specifications for all back-office systems with software module descriptions in a narrative format and data flow diagrams to the lowest level of decomposition
- Detailed specifications for all application programming interfaces (APIs) supporting frontend and back office operations
- Detailed specifications for all system transaction formats
- Detailed descriptions of all message formats and data elements for device and system events and alarms
- Interface control documentation for all systems and subsystems
- Complete data dictionary and detailed database design documentation, including all tables, views, and materialized views for all database schemas in the system, in electronic format (e.g., ER Studio)
- Documentation of database programming features including, but not limited to; queries, query formats, triggers, jobs, functions, and procedures
- Requirements traceability matrix
- Installation plan

INIT has found greater success with collaborative communication during meetings and documentation revisions thereafter being submitted to the Agencies as opposed to ongoing back and forth without personal engagement. However, if after review, the material does not meet the stated requirements of FDR completion and additional comments or clarification are necessary, INIT will continue the resubmittal process until ratification is achieved.

2.7.2.3 Installation & Transition

Integrated within INIT's program management plan is the transition and change management plan. The transition section of this plan describes how the old system will be transitioned to the new system; including all operations for ORCA, the public and all external stakeholders. Included in the plan are risk mitigation procedures for the transition process, including any additional equipment and/or staffing requirements for ORCA.

2.7.2.3.1 Installation & Transition Strategy

Essential for a seamless transition for customers from the customer's legacy ORCA system to the next generation ORCA system is a rapid transition period where mixed validators (legacy and new generation) operate concurrently within the system. To achieve this, INIT plans to perform detailed prototyping of every unique vehicle make/model/type and unique platform validator type far in advance to the fleet installation to ensure that for each installation type, the new validator mounting, and cabling are considered. The outcome of the prototyping will be detailed installation plans for each installation type.

Due to the limited space available, INIT proposes reinstalling the legacy validator after prototyping is complete. During the prototyping of a vehicle type, the vehicle will be out of service. For this reason INIT plans to quickly reinstall the legacy validator. This will allow INIT to preorder all parts and cables needed for the fleet installation without expanding the timeframe of operating with mixed validators in the system.

2.7.2.3.1.1 Onboard Validator Coach Installations

INIT has reviewed the existing on-board validator installation locations for the legacy validators and is confident that the existing installation brackets/stanchions can be reused. This will make the installation process very easy and time efficient.

For all coach installs, INIT will mobilize 10 technicians (5 two-member teams). For coach installations where it is possible to reuse existing cabling the manpower and estimated times are:

- Validator & DDU installs: 2-member team, 2.5 hours/vehicle
- Validator only installs: As requested, KCM and CT maintenance will perform these installs

For coach installations where new cabling is required, the manpower and estimated times are:

- Validator & DDU installs: 2-member team, 4.5 hours/vehicle
 - Validator only installs: As requested, KCM and CT maintenance will perform these install

2.7.2.3.1.2 Platform Wayside Validator Installations

INIT is planning to install new masts/mounts but would reuse the existing infrastructure where possible to avoid complicated and time-consuming installation of floor anchors etc.

For wayside validator installations where the existing infrastructure can be reused, INIT will mobilize 10 technicians (10 one-member teams). Manpower estimates are below:

- Replace mounting poles utilizing existing anchoring, reuse existing cabling and install validator 1-member team, 3 hours/wayside

Wayside validator installations where the existing infrastructure cannot be reused will need to be evaluated case-by-case to determine whether a one or two-man team will be required and what additional resources will be required.

2.7.2.3.1.3 Vending Machine Installations

INIT is planning to re-use the existing infrastructure where possible to avoid complicated and time-consuming installation of floor anchors etc. INIT proposes to install the platform validators and the Vending Machines in parallel.

For Vending Machine installations, INIT will mobilize 10 technicians (5 two-member teams). Manpower estimates are below:

- Utilize existing anchoring, reuse existing cabling and install vending machine, 2-member team, 8 hours/wayside

2.7.2.3.1.4 Customer Service Terminal Installations

Installation of the customer service center may be completed within one weekend to avoid having different systems running concurrently.

2.7.2.3.1.5 Driver Display Unit Installations

ngORCA DDU installations will be included in the on-coach installations for: Everett Transit, Kitsap Transit & Pierce transit and will be performed by the SI.

Community Transit and King County Metro will both have Single Sign-on, integrating their existing CAD/AVL and ngORCA functions into their INIT-provided MDT.

- Community Transit will complete their fleet upgrade to the INIT MDT by June 2019, in time for the ngORCA integration.
- King County Metro will incorporate their INIT MDT upgrade with the validator. Installations will be performed by KCM maintenance.

Since both Community Transit and King County Metro use similar INIT on-board equipment and MDTs, INIT can provide both agencies Single Sign-on leveraging existing installed equipment. In both cases, a separate DDU to control eFare will not be required.

Site surveys and installation plans per vehicle type will be provided by INIT.

2.7.2.3.2 Phased Back-Office Parallel Transition

As noted, there are nine (9) specific phases in the transition planning. The first phase is readying the system for the moving the back-office away from the Legacy system. To do this, the DARE integration needs to be ready and completion of the integration testing. Once the back-office has been reconciled and the data accurate, a timeline can be established for when to switch over to the ngORCA system as the System of Record. During this time, INIT will work through the prototyping of each installation site or location and where possible, readied all of the pre-installation activities (e.g. mast installations).

Once the ngORCA back-office is the System of Record then the fleet wide installations need to occur. Each need to occur in a parallel path so that the overall duration of installation can be mitigated to the extent possible so as to limit disruption to riders, users, and operators.

Additionally, the Agencies will have initiated the procurement of the retail vendor and the integration work complete once the media launch has occurred. Upon launch, ngORCA new media can begin to be used and with that, would be appropriate that retail partners have the latest media to sell.

Once all items are in place the last decommissioning activities can occur, including the retail network.

Below is a summary list of those phases:

1. Initial Data Access and Reporting Platform Implementation
2. Systems Integration Testing
3. Validator & DDU Pre-Installation & Prototyping
4. next gen ORCA Back Office becomes System of Record
5. Validator & DDU Launch

6. Vending Machine side-by-side operation
7. Media rollout
8. Retail Partner implementation
9. Legacy ORCA decommissioning

Additionally, within the project schedule, the above referenced items are included as milestones for ease of reference and include the appropriate dependencies in the schedule content below. Some detail will be added as it becomes available and it will then be added to the schedule and built in as part of the overall plan.

2.7.2.3.3 General Installation and Transition Needs

As noted in the sections below, INIT will work with the Agencies in the early stages of the project to initiate the installation and planning discussions early. In general, INIT will provide the needed hardware, instructions, training, and labor as needed to ensure full completion of all installation activities. For those partner Agencies that perform their own installations, INIT will work closely on the first few sets including the prototyping, to ensure the instructions are clear and there are no roadblocks to be encountered by the Agencies.

As part of the installation plan, INIT will include the detail and information about both field equipment and back office equipment, including the Agency Test Facility.

Following the completion of each commissioning test, INIT will provide a test report to validate the successful installation and communications.

2.7.2.3.4 Installation & Transition Plan

As discussed in the Transition Strategy chapter, it will be essential to install the validators as fast as possible. To achieve that, on-board coach validator installations and platform wayside validator installations will be managed by two different teams working concurrently.

INIT will provide detailed and transition plans for agency review and approval during FDR. Final versions of both will be provided to the agency 120 days prior to first delivery of equipment.

For each of the installation types, INIT has structured the work teams so that they can each complete their tasks in the same period of time.

- Coach validator installations (reuse of wiring)
 - 650 vehicles * 2.5 hours/coach = 1,625 man hours
 - 1,625 man hours / 5 two-man teams per coach = 325 install hours

- 325 install hours / 8 hour work day = 41 install days
- Coach validator installations (new wiring required)
- 650 vehicles * 4.5 hours/coach = 2,925 man hours
- 2,925 man hours / 5 two-man teams per coach = 585 install hours
- 585 install hours / 8 hour work day = 73 install days
- Platform wayside validator installations
- 1095 platform installs * 3 hours/wayside validator = 3,285 man hours
- 3,285 man hours / 10 one-man teams per validator = 329 install hours
- 329 install hours / 8 hour work day = 41 install days

INIT has the flexibility to increase or decrease man power, work hours or work days per week as required to adjust to the availability of vehicles to meet the installation schedule.

INIT proposes replacing all platform validators before installing Vending Machines in the field. Also, Customer Service Terminals will be installed in a single weekend.

2.7.2.3.5 Site Surveys

The ngORCA agency provides data on the correct operation of all power and signal cables, switches and routers, etc. they are providing. During the site inspection, plans for ingress and egress of the installations are determined.

Initial vehicle, station, terminal, and wayside platform surveys will be completed as a part of the design review process. As part of FDR, INIT will submit the installation details and specifications for all equipment installations for agency review and approval.

Pre-inspection activities include testing existing systems, to which INIT must interface, as well as recording damage or other existing conditions prior to equipment installation. During pre-inspection, INIT identifies any modifications or additional provisions needed for installation of the System equipment and related system components but will work as much as possible within the limits of intended location.

INIT performs detailed site surveys and inspection for, all vehicle types, back office install locations, wayside install locations, and Customer Service Terminal locations, to document the procedures of each installation type required.

Using the information provided in the RFP Appendix #1, we determined the different vehicle types that each agency has. From this we can estimate the following number of vehicle site surveys that would be required:

	King	Pierce	Kitsap	Everett	Comm	Sound
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	Couny Metro	Transit	Transit	Transit	unity Transit	Transit
Vehicle Types	10	7	6	4	8	13

The vehicle information in the proposal appendix is intended as an initial estimate of the number of site surveys that would need to be performed, the actual number of prototypes needed will be determined during the site surveys. Our experience tells us that roughly half of the surveyed vehicles would need to be prototyped. This would lead to a total of 24 prototype vehicles for all agencies.

Wayside surveys will indicate variability in installations across agencies. To assist, agencies will be asked to provide:

- Schematics from each agency on communication, power and networking details
- Location names and addresses
- Different types of Mast or mounting configurations per location
- Determine level of waste/recycling for each decommissioned wayside
- Determine level of concrete work

Vending machine surveys will indicate variability in installations across agencies. To assist, agencies will be asked to provide:

- Schematics from each agency on communication, power and networking details
- Location names and addresses
- Existing Vending Machine make, model & specifications
- Decommissioning instructions for Existing Vending Machines
- Clearing out cash
- Special decommissioning procedures
- Floating time for all transactions to settle
- Mounting schematics
- Disposal

Agency CST location surveys will indicate variability in installations across agencies. To assist, agencies will be asked to provide:

- Schematics from each agency on communication, power and networking details
- Location names and addresses

- Different types of mounting configurations per location
- Determine level of waste/recycling for each decommissioned customer service terminal

2.7.2.3.6 Prototype Installations

Per the installation plan, INIT performs a prototype installation of the field devices in each of the different field environments in which the equipment will be installed, including a prototype installation of all bus equipment for each vehicle type. At this point, INIT has assumed three different station types requiring prototype installations. The prototype installations remain in service for at least one (1) week to ensure the integrity of the installation design.

2.7.2.3.7 Onsite Work Requirements

All INIT employees and subcontractors, working within operating rail stations, platforms, and rights-of-way, will comply with applicable rail safety and operations rules and regulations. All personnel engaged in Installation activities will have attended ngORCA's safety training and will be dressed appropriately. INIT will deliver and execute the safety access plan for all onsite work. Safe access will be afforded to construction equipment, vehicles, and personnel in accordance with ngORCA policies and OSHA regulations. All access plans will be submitted to the Agency for review and approval. INIT is responsible for compliance with all Regulatory requirements applicable to the design, construction, Installation, and testing, including the application and granting of all applicable permits. Additionally, INIT shall comply to the individual training requirements of each site location as shown in Table 2-4.

2.7.2.3.8 Installation Procedures

INIT will submit installation procedures unique to each agency for all hardware and software to be installed, in accordance with the approved installation plan, agency rules, and guidelines.

These procedures will include an installation procedures manual for each agency. The procedures will detail how any modifications made to agency-owned facilities and equipment as a part of equipment installations will be sealed and corrected in order to preserve the integrity of the infrastructure.

2.7.2.3.9 Shop As-built Drawings

INIT will submit shop drawings used in its manufacturing and assembly facilities to fabricate, assemble, and/or install components of the system. This is true for items manufactured from raw materials, items purchased as raw materials, or items purchased in ready-to-use condition. Shop drawings and their projected delivery dates are noted on the master program schedule.

Part of the work necessary to define the drawings will include site visits and surveys; INIT will coordinate and work with the Agencies, at each of their designated locations or facilities to ensure we understand the scope of the work involved. During this time INIT will make inquiries regarding the Agency's processes and gather available existing information to understand the specific nuances of each element of the installation efforts. Additionally, during this time INIT may also share information pertaining to the methods or efforts engaged, how information will be conveyed in the drawings and other similar informational materials or instructions.

No work indicated by any shop drawings will be commenced until drawings have been marked as "Approved" or "Approved as Noted." INIT will document each device installation in the form of an as-built drawing. The as-built documentation will identify equipment location information, wiring connections, and all additional information needed to maintain the newly installed infrastructure. All drawings will contain dimensions, physical details, connections, and other information pertinent to system diagnostics, maintenance and troubleshooting. Where applicable, the substance and detail contained in the drawing as well as how to review and manage the index will be provided as part of the system maintenance training.

For each set of as-built drawings, the Program needs the SI to submit prior to final acceptance:

- One (1) copy on electronic media, in a format approved by the Agencies
- One (1) reproducible CAD-generated hardcopy

A master index of drawings is submitted to ngORCA agency, clearly indicating the organization of the shop and as-built drawings, listed by drawing number. The master drawing index also provides cross-references to related drawings, and the hierarchy of all drawings and drawing layers.

2.7.2.4 Testing

INIT employs a rigorous test regimen to ensure that all assets delivered to the ngORCA agencies are fully functional upon initial delivery. This establishes the foundation for reliable system performance and high availability. We use that experience to deliver a test plan to the ngORCA agencies to fully demonstrate compliance with the requirements. INIT plans, performs, and documents all tests to proof the design of all components and subsystems, and the integrated system as a whole.

Once a piece of software is ready it will go through a series of test steps. At the time of the system integration phases, following the scripted tests each release thereafter will include a two-part test approach, functional tests and regression tests. The functional test will validate the quality of the proposed change while the regression tests will ensure the continuity of system performance is unchanged. Once INIT has performed these tests and can validate the quality of

the release, the testing is then available for the Agencies. Each system component will have a subset of regression tests and accompanied by an assortment of system-wide regression tests. Taking this approach ensures the integrity of the affected component and also overall system health. Additionally, if during the scripted tests occurring as part of the test phases noted below a failure occurs, the retest once the corrective action has been implanted will include both a functional test as well as component level regression tests. In some cases, later in the project, when a fix is introduced, depending on the nature of the fix, further integration-based regressions tests may be required to ensure no breaking changes have been introduced.

The project testing will occur in three (3) distinct test phases, functional, integration, and acceptance testing. During the functional test, INIT or the relevant vendor, will demonstrate that each system component is able to meet the requirements as stated in the scope of work, as independent elements – this includes the relevant environmental and compliance test of physical equipment. During this first phase there will be several independent test cycles occurring for the different parts of the system and at different times. Additionally, during this test phase usability testing to validate the user-centered design approach undertaken with the UI/UX efforts will also occur. Following each system components completion of the functional test there will be important information and low-level detail gathered and brought forward in preparation for the integration testing.

As noted, the functional testing will occur at varying intervals based on the readiness of the components. Once through the functional test and readying for the integration tests, there will be less variance though still some. However, by the time of the integrated field test, the majority of these components must be available and integrated in order to appropriately perform the test. The websites and mobile apps will continue usability testing iterations up through the final implementation. Additionally, during this test phase the system will undergo load testing, stress testing, and/or failover testing for the different elements of the system. The integration test will ultimately indicate the successful functionality and performance capability of the system.

Once the Pilot Test has been completed successfully, the system will move into the acceptance test phase. During this time the system is live and in peak usage; in this state the system is intended to demonstrate its capability in meeting the stated performance requirements over a fixed duration. Upon achievement and completion of any open points remaining, the project will be complete and ready to move to operations and maintenance.

2.7.2.4.1 General Requirements

INIT will not begin any portion of system testing until all prerequisites have been successfully completed and approved in writing by the ngORCA agencies. While all testing phases will be completed in their entirety for each phase of deployment, the packages or content included in

certain test phases will be broken out into smaller subsets. This breakout allows INIT to more aptly progress various pieces of the system by allowing them to progress at different paces based on their relative maturity and the effort needed. Taking this approach INIT can stave off unnecessary delays or down-time that would come as the result of waiting for all system components to be ready at the same time. Further, certain system components will be more complex or require varying levels of integration with multiple systems and as a result require more layers of a certain test phase. Progressing both the development and test phases in an agile and iterative fashion will help to mitigate schedule risk as well. However, no single test phase will be considered complete until all system components have entered and successfully passed that phase.

INIT will provide all labor and materials required for system testing, including fare media, payment cards, support services, and facilities required to stage, inspect and test all hardware and software being supplied. As part of the overall testing regime:

- INIT tests and verifies that they can successfully utilize the agency-provided communications networks for deployment of the system as designed.
- During all conducted tests, any and all hardware or software not passing inspection or test will be replaced, or otherwise corrected by INIT and retested.
- Prior to the start of any formal testing, INIT will conduct “dry-run” testing to identify and resolve any issues that arise before formal testing commences.
- Successful completion of each phase of testing will be subject to agency approval based on approved test criteria.

INIT will ensure that the Test Plan covers all inspections and tests to be performed, including those performed under the Quality Assurance plan. No tests will be performed until all the required prerequisites have been met. Test results will be submitted for review after completion. In the event corrective action or remediation is required prior to acceptance, INIT will coordinate and plan said activities in cooperation with the Agencies including schedule for installing fix in test, the required testing (component or integration-based regression tests), and the confirmation that the test has passed.

2.7.2.4.2 Test Documentation

In order to ensure continuity and consistency from design to test, INIT will develop the test documentation from the system design documents approved as part of the FDR. Using the design documents, INIT will detail each individual requirement and use case needed for test. Further test iterations will continue to build off the associated test plan so that there is

traceability of each test and outcome. Additionally, INIT will also utilize the Requirements Traceability Matrix and track the progress of the test cycles there.

As noted, INIT will prepare and submit to the ngORCA agencies detailed test procedures of each test. The procedures will be provided several weeks in advance of the test to allow for Agency review and comment or feedback to be received and incorporated prior to the test. These procedures will include the following:

- Information provided in the test plan (repeated)
- Mapping or references to the design documents and functional requirements related to the test
- Test methodology, including input and expected output
- Equipment and instrumentation to be used for testing
- Detailed breakdown of all hardware and software components under test
- Detailed test scripts
- On-line and off-line diagnostics
- Any related documentation (drawings, prints, supplier specifications, and recommendations)
- Forms for recording data, including fields for date, time, location, and name and signature of persons conducting or witnessing the test
- All other information required to monitor and manage the inspection and testing
- Name and signature of the person who prepared the test procedure

Additionally, the INIT team will submit the Test Plan which will identify the inspection and testing to be performed at for each test. We will ensure that information provided for each inspection and test includes the following requirements:

- Test title
- Reference to contract requirements section requiring the test
- Organization performing and responsible for the test
- Inspection/test location
- Test objectives
- Test pass/fail criteria
- Test schedule

- Test procedure submittal
- Test start date
- Test duration
- Test report/certification submittal

During the design review INIT will provide test samples used on previous projects to demonstrate the methods and process for documentation.

2.7.2.4.2.1 Inspection & Test Plan

INIT will submit a draft Inspection and Test Plan for the ngORCA agencies review and approval during the design reviews. The Inspection and Test Plan will provide the schedule, methodology, strategy, and planning in detail for each of the associated test phases as well as ancillary testing intended to be undertaken during the project delivery. The Inspection and Test Plan will detail the documentation, test procedures, scripts, and reports required for each phase (Factory, Integration, and Acceptance Testing).

The Inspection and Test Plan creation and management will be overseen by the Lead Engineer from INIT; however, the individual test scripts and procedures will be the responsibility of the individual developers and/or vendor SMEs. As with all documents, the test procedures and documentation provided by the developers or vendors will go through a peer review and evaluation prior to issuance to the Agencies. See below for a high-level matrix for how the plans are created and reviewed:

Test Topic	Author	Peer Review	Final Review
INIT Back Office Software Applications	INIT SME	Engineering Team Lead	Lead Engineer; Lead SW Engineer
INIT Back Office IT Architecture	INIT SME	INIT IT Director	Lead Engineer
INIT Failover and Load Testing	INIT SME	INIT IT Director	Lead Engineer; Lead SW Engineer
Customer Mobile App	Vendor SME	UI/UX Vendor; INIT Business Analyst	Lead Engineer; Lead SW Engineer
Customer Website	Vendor SME	UI/UX Vendor; INIT Business Analyst	Lead Engineer; Lead SW Engineer
Agency Fare Inspection and Validation Apps	Vendor SME	UI/UX Vendor; INIT Business Analyst	Lead Engineer; Lead SW Engineer

Prior to each individual test cycle (occurring within a test phase as detailed below), INIT will submit a test procedure providing a detailed outline indicating the sequence of each test, module being tested, where and when each test will take place, and the number of INIT-provided staff covering each test, including any vendors:

Test Phase 1: Factory Testing

1. First Article Configuration Inspection (FACI)
2. Factory Acceptance Test (FAT)
3. Production Acceptance Test (PAT)

Test Phase 2: Integration Testing

4. Functional Unit Testing (FUT)
5. System Integration Test (SIT)
6. Field Integration Test (FIT)
7. Pilot Test(s)

Test Phase 3: System Acceptance Testing

8. System Acceptance Test (SAT)
9. Final System Acceptance (FSA)

The Inspection and Test Plan will include the number and range of tests that will need to occur as well as the criteria for acceptance of each phase of testing. All performance measurement procedures and acceptance criteria, including the number and type of failures allowed in each phase of testing, will be in accordance with the requirements of the technical scope of work and subject to the ngORCA agencies review and approval.

The Inspection and Test Plan, in addition to the tests occurring in the above stated test phases will also include scope for volume or stress testing, for applicable devices, that simulates peak ridership and transaction volumes as required based on the projected ridership numbers provided by the Agencies during design review. The Inspection and Test Plan will also include detailed test scripts for each test case to be performed. Test scripts include test case setup instructions and preconditions, step-by-step instructions for performing the test, and expected results for each step. Embedded within the detailed inspection and test procedures are references to the design documents and functional requirements related to the test.

2.7.2.4.2.2 Integrated Delivery Testing

During the project implementation and project operations phase INIT will perform comprehensive testing for all software and services delivered.

```
PUT http://localhost/VarioAPI.Services/api/Users/4137898/Credentials [200 OK, 542B, 43ms]
✓ Status code is 200
✓ Response time is less than 20000ms
✓ Users password is updated to New Password!
└ If getting users by pagination
  GET http://localhost/VarioAPI.Services/api/Users?skip=0&take=5 [200 OK, 1.31KB, 71ms]
  ✓ Status code is 200
  ✓ Response time is less than 20000ms
  ✓ Result contains 5 users of 65
└ If getting users by user name pattern and pagination
  GET http://localhost/VarioAPI.Services/api/Users?skip=0&take=5&userNamePattern=1 [200 OK, 1.31KB, 46ms]
  ✓ Status code is 200
  ✓ Response time is less than 20000ms
  ✓ Result contains 5 users of 27
└ If validating user right
  POST http://localhost/VarioAPI.Services/api/Users/4137898/UserRightVerifications [200 OK, 239B, 43ms]
  ✓ Status code is 200
  ✓ Response time is less than 20000ms
  ✓ User right is valid for INSTITUTIONACCOUNTADMINISTRATOR
└ If removing user
  DELETE http://localhost/VarioAPI.Services/api/Users/4137898 [204 No Content, 1018B, 60ms]
  ✓ Status code is 204
  ✓ Response time is less than 20000ms
  ✓ User is deleted
```

	executed	failed
iterations	1	0
requests	470	0
test-scripts	466	0
prerequisite-scripts	46	0
assertions	1626	1
total run duration: 3m 25.2s		
total data received: 2.85MB (approx)		
average response time: 354ms		

API test script results

Collection	TriMet APIs Integration		
Description			
Time	Wed May 23 2018 15:26:37 GMT+0200 (Mitteleuropäische Sommerzeit)		
Exported with	Newman v3.8.3		
	Total		Failed
Iterations	1		0
Requests	470		0
Prerequisite Scripts	46		0
Test Scripts	466		0
Assertions	1626		0
Total run duration		2m 8.7s	
Total data received		2.79MB (approx)	
Average response time		248ms	
Total Failures	0		

API test script results

The following represent a sample test approach. Detailed test procedures will be submitted for each delivery.

- For API deliveries
 - Before delivery, API calls are tested with java based scripting with customizable parameters to enhance the quality of testing
 - A use case based testing approach is used as a part of these scripts to simulate daily use cases. Here is an example:
 - Create user account
 - Use the user account id to create a work ticket / submit a card order
 - Fulfill the card order
 - Assign the card to the user account
 - Load value to the card assigned to the account
 - Test fare payment with the card
 - Test inspection result for the previous fare payment
- For device software deliveries
 - Scripted software testing is done to simulate use case based testing for the device software. Here is an example:
 - Card taps with products
 - Card taps to simulate capping pots
 - Card taps to simulate transfers to different vehicles
 - Card taps to simulate zone override and multi zone fares

After the software is delivered to the test system, comprehensive testing is done in the test system to test possible use cases. Checklists are used to document the successful test result. This will include, but will not be limited to validator software, CRM, Ticket Vending Machine software, websites, and mobile apps, inspection apps to cover typical use cases of the respective devices, software applications and customer facing apps/website.

Once the software is approved and delivered to the production/live system, a similar set of tests are conducted in the production/live system in order to conclude the testing phase of the delivery.

2.7.2.4.2.3 Inspection & Test Procedures

As detailed in the Inspection and Test Plan, INIT will submit an Inspection and Test Procedure for each test in the stated test phases, subject to review and approval by the Agencies. Creation of each test procedure will be drafted by the responsible subject matter expert (SME) utilizing the most recent system design document approved by the Agencies.

Prior to each test, INIT will need to prepare the required test facility to ensure the appropriate equipment, database, configuration, and media are present and ready for test execution. To provide the Agencies with a clear understanding and outline of what is required, INIT will submit a software installation plan and test setup diagram for those tests not occurring at the Agencies local test facility and, a software installation plan and system configuration diagram for the agency test facility. These documents will be submitted as part of the procedures for the specific test phase or test itself as applicable.

Each test procedure submitted to the Agencies will include detail on the following:

- Test scripts for each test case to be performed as part of the test
- Setup instructions and preconditions
- Module reference (e.g. CRM, CST, Web Portal)
- System Design Document reference
- System Design Document section reference for the specific test case
- Responsible person for test execution
- Date of test execution
- Step-by-step instructions for performing the test
- Expected results for each test step
- Agency personnel present to witness the test

During the test, each test script will be classified as having either passed or failed; however, in some instances the test may be deferred by the Agency. Deferring a test is uncommon but may be required if for example the Agencies have requested additional time for final design requirements to be made (e.g. automated email because marketing has not yet finalized the copy for the email's content) but going forward with the test is critical to schedule adherence and, the test does not adversely impact or cause risk the progression to the next test phases.

In the event a test has failed, INIT will be required to initiate corrective action and/or remediation prior to requesting a retest. The scale and method of re-testing will be at the discretion of the Agencies once the corrective action has been implemented. For example, INIT may request to retest the single failure for a specific Agency designee or the Agency may request that the functional test of the failed item be undertaken along with a small sampling of additional tests to ensure breaking changes have not been introduced.

In addition to INIT's scripted tests, the Agencies may develop additional testing or test scenarios on an ad hoc basis during all phases of testing and have access to the test facilities, as available.

2.7.2.4.2.4 Inspection and Test Reports

To validate successful completion, INIT will submit a test report at the conclusion of each inspection and test performed. For continuity in the different test cycles, the test report will be derived from the test procedure. The primary changes to the test procedure will include the following data gathered and documented during the test:

- Test result (pass, fail, or defer)
- Agency designee witnessing and validating test performance
- Comments or actions (e.g. requests made during the test which modified or added to the predefined procedure)
- Changes required to the test setup
- Specific test data not previously included (e.g. card numbers, login credentials, etc.)

If any additional comments or other data are generated but not inherently specific to a test case, as part of this report INIT will also provide, copies of all data generated during the test. All transaction data generated during testing is submitted as part of the report, in Excel format to allow for simple storage and analysis by the ngORCA agencies.

An Inspection and Test Report may be updated after a retest to include the exception of the initial test, detailing explanatory information, failure descriptions, corrective action implemented, as well as a provision of all transaction data generated, detailed failure descriptions and resolution, modifications or repairs pertaining to the components or systems being tested, and any re-test results.

Inspection and Test Reports are delivered at the conclusion of each test within the associated test phase(s) for ngORCA agencies for review and approval. No test or phase of testing will be considered complete until the associated reports have been approved by the ngORCA agencies.

2.1.1.1.1.1 Test Waivers

INIT understands test waivers could be requested for components or subsystems that are substantially similar to previously tested components or subsystems, if agreed to by the Agencies. As INIT has some system components, similar to those intended for ngORCA, currently in operation as well as those that have most recently passed a series of factory tests for other projects, review and consideration of waiver options should be undertaken as this could more positively impact schedule constraints. To ensure timely review, INIT proposes that an initial review or discussion occur during the Conceptual Design Review phase. Actions or considerations of next steps can be further review or considered thereafter.

Irrespective of examples provided or broader conversations undertaken with the Agencies, it is clear specific testing requirements for each system component will be considered individually. Waivers issued, if any, will be done so on an individual test and component basis only. The Agencies reserve their right to not grant an additional waiver for any of the other tests or test phases pertaining to the component granted a waiver for a previous test.

For example, in the event that INIT was to be granted a waiver for environmental testing of the Validator, which occurs during FACI, INIT may not assume that the Agencies have granted a waiver of the Validator for the entirety of the FACI test. As such certain cycle or performance tests may be required if they were made part of FACI Inspection and Test Plan. Further, should the Validator be granted a waiver for the entirety of FACI, INIT may not assume that the Validator need to undergo FAT or PAT testing.

While applicable to the Factory Test phase, waivers are not appropriate for and as such will not be granted for integration or acceptance phase testing. The ngORCA design and implementation will be a unique system, as such, integration testing of each and every component in multi-staged environments is essential. Further, the performance metrics required of this unique and specific system cannot reasonably be replicated.

2.7.2.4.3 Agency Test Facility

INIT will provide the Agency Test Facility with no assumption that the facility will be located in any Agency facility. The test facility is included in the scope of this proposal. INIT will provide this facility built to specification as defined in the design phase of this project.

In order to appropriately test the functions, configuration, and integration of the ngORCA system, a local, accessible test facility for both Agency and INIT personnel is required. The provision of this test facility could be undertaken in a couple of different ways; however, INIT understands that the location and provision is our responsibility. Further, it is understood that the test facility will need to be available for agency access during normal business hours and, upon special request to the extent practicable, after hours, on weekends, or during holidays.

One location option would be something similar to what the Agencies have experienced with the current legacy system; hosted inside the offices of the vendor. While an independent location could potentially be identified, INIT believes this option to be cost-prohibitive and logistically challenging. The second option of test facility location could be within an Agency office (e.g. Sound Transit) or building. As there are various considerations that can be made for either option, INIT has provided a few points and both pros and cons to each below.

INIT Office

If hosted in INIT's office in Seattle, INIT would first need to source a new office location as the current building is insufficient in size, there are no freight elevators, and there are likely some power accessibility limitations. However, if this is the preferred approach INIT would upon notification of contract award, need to undertake the necessary steps to identify new location options. The new office would aspire to be centrally located and be sufficient in size, power, accessibility, access to a freight elevator, secure requirements for access, and include the capacity for storage.

Positive aspects in taking this approach include the following:

- Agency agnostic
- Centrally located for the Region
- Limit risk to Agencies in the event the test facility is accessed by unauthorized personnel, an item of equipment or personal belongings are the subject of theft, or other similar risk

Some of the negative aspects could include:

- Access limited based on requiring an INIT representative be present; either an INIT staff person would need to be in the office at the date and time specified or the Lead Engineer or similar Project Team staff accompany the Agency; additionally, the building allows free access between the hours of 8AM to 5PM only
- Location remote to INIT Lead Engineer (as they are present in the offices of ST); if issues arise in the test facility, they will need to travel etc. in order to inspect the issue or support the resource in their test
- Location unknown and may require some travel for all Agencies; costs for parking or commutes also unknown

Agency Office

In order to consider there to be an option to host at an Agency facility, first and foremost there simply has to be the interest and then as important, logistically there must be the space available or to become available in the timeline it is required. And that use is in accordance with the long-term needs of ngORCA. That said, similar to the above, there are always pros and cons to consider; provided below is a summary of a few points.

Some positive considerations for hosting at an Agency location are:

- If at either Sound Transit or King County Metro, the location is central for the Region
- Access is agnostic of or not inherently limited by INIT (office) or INIT's attendance
- If at Sound Transit, the location is immediately accessible to the entire Project Team (ngORCA and INIT)
- If at Sound Transit, INIT's Lead Engineer is more readily available to support during a test
- If at Sound Transit, INIT's Lead Engineer can more easily demonstrate or train Agency staff should the need(s) arise
- Stringency of security is at the discretion and control of the Agencies
- Wireless network setup and access may be easier or more convenient

Some negative points that could arise if hosted at an Agency facility to consider are:

- As noted before, if a location is simply not available or not available for the duration of the need
- The location available may have power or space limitations; may not have a freight elevator
- Not Agency agnostic
- If not at Sound Transit or King County Metro, the location could be more remote than that which is desired or preferred
- An Agency may have access limitations for security reasons not otherwise present with INIT or at INIT offices
- In the event of theft, a security breach, or power outage, the hosting Agency may absorb more risk than palatable or even allowed from a policy perspective

Location specific considerations aside per the RFP, INIT will identify and provide a secure facility in Seattle at a location approved by the Agencies. As stated, the purpose of this facility is so that both the Agencies and INIT can test current system hardware, software, and perform integration and regression tests as needed or desired.

The test facility will be connected to the INIT back-office as described in Tab 1 “Technical Proposal of INIT's Account Based Open Architect System” of this proposal. Also, any media or test setup necessary to facilitate testing, including required labor or personnel, will be provided by INIT.

The test facility back-office will include hardware identical to the production system (but will not require redundancy), be equipped with the account-based transaction processor, and have the ability to connect directly to the merchant acquirer (or other processing entity) to fully test credit and debit transactions without processing transactions such that they will be reported by the processor.

The ngORCA equipment installed the test facility will include separate hardware and software replicating the Agency-specific system configuration, including any existing equipment (*e.g.*, CAD/AVL system, MAR, mobile device) that is integrated with the new System. It is noted however, that Washington State Ferries will maintain their own Wave2Go test facility separate from this system and as such is not required as part of the ngORCA test facility.

Based on the current understanding of the Agency-specific configuration, the test facility should include the equipment and software as noted below. However, it is important to denote that some equipment will need to be supplied by the Agency as it is not in scope to INIT:

Community Transit

- Onboard Validator
- Driver Display Unit
- Bus-in-the-Box
- Platform Validator
- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Everett Transit

- Onboard Validator
- Driver Display Unit

- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

King County Metro

- Onboard Validator
- Driver Display Unit
- Bus-in-the-Box
- Platform Validator
- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Kitsap Transit

- Onboard Validator
- Driver Display Unit
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Pierce Transit

- Onboard Validator
- Driver Display Unit
- Platform Validator

- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Sound Transit

- Onboard Validator
- Driver Display Unit
- Bus-in-the-Box
- Platform Validator
- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied fare inspection unit and installed Fare Inspection Mobile App
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

Washington State Ferries

- Validator or validation set up if required
- Driver Display Unit
- Customer Service Terminal
- Terminal with installed Customer Relationship Management software and access to Web Portal
- Agency supplied mobile, smart devices and installed Customer Mobile App and access to mobile version of Web Portal

In addition to the above noted configurations and setup, INIT believes that Agency staff, INIT Project Team, and ngORCA personnel should also have reasonable access to a functional work space (table, chair, power, etc.) for recording test results or other ngORCA documentation, bathroom facilities, and also consideration of space for meal consumption or access to water for hydration. Additionally, and to be determined in the design review, some consideration of

additional equipment to facilitate witnessed tests should also be considered. For example, access to white boards or an easel with large note paper, telecommunications access or speaker system for remote participation, and a projector or similar Audio/Visual equipment or display screen.

During the project delivery test phases, following the Factory Test phase all testing thereafter will be performed locally on site. Specific to any lab tests, the expectation is that those tests be held in the Agency test facility. However, depending on the size of the audience witnessing the test, other temporary considerations could also be considered if necessary.

To facilitate some of the testing INIT would also like to suggest the Agencies consider the provision and configuration of legacy ORCA equipment as part of the Agency test facility. While some considerations or variation might need to be made with respect to management or maintenance, having both legacy and ngORCA equipment will help INIT to better perform or demonstrate the integration test phases prior to INIT becoming the system of record. This also in turn mitigates some of the unknown risk(s) of operating or transitioning of two separate systems. INIT understands that there are many factors to consider with such an approach. Should there be questions or further clarification needed, INIT will make the appropriate resources available for any further technical or logistical discussion.

With regard to test facility maintenance, INIT will be responsible for and provide all maintenance support for the equipment, systems, and interfaces through Final System Acceptance, and maintain the test facility software configuration throughout the terms of the warranty and software maintenance agreement for all devices and modules down to the Lowest Level Replaceable Unit (LLRU). INIT anticipates that most of these activities will be undertaken by the local Lead Engineer with support from the remote INIT IT and database support team.

2.7.2.4.4 Factory Testing

The Factory Testing test phase includes the following:

- First Article Configuration Inspection
- Factory Acceptance Test
- Production Acceptance Test

Each test associated with the Factory Testing phase will not be performed on site at either the Agencies facilities or the Agency test facility due to the nature of the tests themselves. The location detail and other relevant information pertaining to these tests will be identified in the Inspection and Test Plan.

To continue to drive the overall ngORCA program schedule, INIT does not anticipate that the Factory Testing occurs collectively for all system components. As such, we will not recommend the test cycle occur within a specified, single time frame. Rather, testing schedules and plans will be drafted in a manner which allows those components that are ready for test, occur without delay. However, the test itself will not be considered 'complete' until all tests and reports have been approved within the specified phase. For example, if the Validator has successfully passed the three test phases noted previously but the Driver Display Unit has yet to complete the FAT, INIT may not submit for approval neither the FAT or PAT and collectively, the Factory Test phase.

As there are multiple factors which will impact the pace with which each system component is tested, we are not able at this time to indicate timelines or specific dependencies. However, we will provide estimates and assumptions as part of the project schedule and plan to have more detailed discussions as part of the design review phase.

2.7.2.4.4.1 First Article Configuration Inspection

The First Article Configuration Inspection (FACI) testing is the first of three (3) tests in the Factory Test phase. Ultimately, the FACI intends to validate that the system hardware meets the specified configuration and quality requirements in accordance with the scope of work. To initiate the FACI, a provision of the first unit of equipment must be available of the first production units of system equipment. For ngORCA, this equipment includes the onboard validator and associated mounting hardware, wayside validators and associated mounting hardware, driver display units and mounting hardware, vending machines, customer service terminals, and back-office equipment and sub-systems. After the first article equipment has been produced, INIT uses the manufacturing drawings to check that all parts and the top assembly are produced per the manufacturing drawings.

Since the FACI test for each item of equipment must occur at the location of assembly, the FACI test schedule may include different test timelines. As part of the FACI, INIT will also provide the Agencies with the quality inspections performed and the results associated, whether performed by INIT or vendor.

FACI Test Prerequisites:

- INIT has delivered the FACI Test Procedures and they have been approved by the Agencies
- One production unit or prototype of each device type has been produced and is available at the test site
- A complete set of approved drawings of each device type is ready for the inspection

- Where applicable, a Bill of Material (BoM) will be provided
- Where applicable, a Buy America certificate will be provided

The FACI will be performed on a mechanical prototype or the first production item for each type of system equipment. The FACI will establish the baseline for hardware design and the quality of workmanship that shall be maintained throughout production. The test will verify that the devices comply with the approved drawings and design. In addition, INIT will perform manual quality tests to verify the results of the prototype production. The tests will cover for example the inspection of the voltages on the mainboard or the verification of the brightness sensors.

The equipment being inspected must meet 100% of the requirements of the manufacturing drawings and the FACI approved by the Agencies before the start of Production and Factory Acceptance Testing begins.

2.7.2.4.4.2 Factory Acceptance Test

Following INIT's successful completion of FACI, the test procedures for the Factory Acceptance Test (FAT) must be provided. As INIT has successfully performed FAT on every system delivered, we are confident in our ability to meet the ngORCA agencies requirements for the test. The components to be tested in FAT are from the first run of production units and are not modified prior to the test. In the event the design of the unit is changed, a retest to validate the equipment continue to meet the stated requirements will be required. FAT is conducted at either INIT's facility or a subcontractor's facility selected by INIT. The test setup, configuration, labor or other materials such as test equipment or fare media required for test execution will be provided by INIT.

The FAT is intended to verify that the system equipment to be produced meets the specified human factors, environmental and maintainability requirements defined in the technical specification. INIT performs these environmental tests to demonstrate compliance with the ngORCA agencies operating environment requirements. Maintainability testing demonstrates compliance with the ngORCA agencies maintainability requirements.

FAT Test Prerequisites:

- FACI successfully completed and accepted by the Agencies
- INIT has delivered a FAT test plan which has been approved by the Agencies
- All Test Waiver Requests delivered by INIT have been approved by the Agencies
- One production unit or prototype of each device type is available for testing

Human Factors Testing is designed to verify that the equipment to be produced for ngORCA meets the specified ergonomic requirements, ease of use, and ADA compliance. Test cases will include steps to test sight, hearing and touch elements of the equipment. To complete the Environmental Tests, INIT will provide documentation to confirm that the onboard validators, driver displays, vending machines, and relevant terminals or back-office equipment comply with the requirements of the SOW. For Maintainability Testing, INIT will confirm that devices and device components can be exchanged within the specified time-period. These tests will also cover ease of access, tools (special tools as needed) required and if applicable labeling and safety instructions of each device.

INIT is responsible to maintain reports of all tests conducted throughout FAT. The reports are submitted to the Agencies at conclusion of the FAT for review and approval. Results not meeting specified requirements are fully documented and explained, and a corrective action plan is submitted. In the event of test failure, once remediation has taken place and a re-test available, INIT will plan and coordinate with the Agencies.

Successful completion of FAT is a prerequisite for the manufacturing of production system components. INIT updates Production Acceptance Test (PAT) procedures based upon experience gained from previous testing and/or system component operation. Test procedures are expanded to focus on areas that prove to be, or have historically been, troublesome.

2.7.2.4.4.3 Production Acceptance Test

PAT represents the third and final stage of the Factory Test phase. INIT and its subcontractors perform Production Acceptance Test (PAT) on each system component as an integral part of the QA program prior to each shipment. Ultimately, the test(s) will verify that the metrics established during FACI and FAT are met for each produced unit and that INIT and its subcontractor certify each unit is produced to at least the same quality level as the unit presented for the FACI and FAT.

PAT Test Prerequisites

- FAT and FACI completed and accepted by the Agencies
- INIT has delivered a PAT test plan which has been approved by the Agencies

Successful completion of each PAT will verify that each system component contains the correct materials, are assembled properly, and function in accordance with the requirements of the SOW, prior to delivery to the Agency. At a minimum, the following functions are tested:

- General device operation and performance in all modes
- Data generation and transfer

- Alarms generation and transmittal
- User interface control and display

The ngORCA agencies may choose to observe, participate in, conduct, or repeat testing on any item to confirm the validity of INIT's test results. The ngORCA agencies may also perform, at their discretion, ad-hoc tests to ensure the quality of the system components. INIT will provide appropriate access to support ad-hoc testing, if required. Successful completion of a PAT is a prerequisite for installation of that equipment at the ngORCA agencies facilities.

2.7.2.4.5 Integration Testing

The Integration Testing test phase includes the following:

- Functional Unit Testing (FUT)
- System Integration Testing (SIT)
- Field Integration Test (FIT)
- Pilot Test(s)

The integration test phase is where the independent timelines and progression of system components need to start to come into alignment. Like a zipper, each test phase represents a further tightening of the system's schedule and completion; to the point where the FIT cannot complete until full alignment. Of additional note, during the integration testing all tests are to be performed either in the Agency test facility or within Agencies premises. Generally speaking, the FUT and SIT will consist primarily of lab-based tests and as such occur in the Agency test facility while the FIT test occurs as it sounds, in the field.

During the integration tests INIT will also undergo the required redundancy validation, system load and performance, and usability tests.

The vision with this test phase is to confirm the system components are able to operate and function in an integrated manner in accordance with the system requirements, the system can be validated as scalable and obsolescence resistant, and, in the end, is ready for live operation capable of providing end-users with a secure, reliable, and technology-thoughtful in design.

2.7.2.4.5.1 Functional Unit Testing

Where the Factory Test phase focused on the system hardware, the Integration Test phase looks more at the performance of the software meant to operate on the unit and then how the complete picture performs. During the Functional Unit Testing (FUT), INIT will first demonstrate the performance, function, and operation of the developed software. As this is the first stage of

the integration testing, this test is performed in a controlled laboratory environment where no changes or design scope are introduced. However, in the event of a design change or test failure, component-level regression testing will be performed after the formal test cycle.

Prior to test execution, INIT will provide for Agency approval the FUT test procedures. The test procedures will include step-by-step instructions of every test, including entry and exist criteria, and test location or specific configuration details in accordance with the stated requirements of the SOW and approved Inspection and Test Plan. Due to the volume of testing to occur, INIT anticipates testing to occur in groups, FUT-1, FUT-2, FUT-3 based on readiness and appropriateness for the test (e.g. Validator Hardware and Software must be ready in order to be in a test group; they should not be divided between FUT-1 and either FUT-2 or FUT-3). Based on our experience on other projects, we anticipate this testing to take approximately 3-4 weeks in total though divided over blocks of specified time for the test set up and configuration of the facility, the test execution, and then any follow up or ad hoc tests.

FUT Test Prerequisites

- Successful completion of Factory Testing
- Completed component-level software development
- Test bench including all system components delivered and installed in agency test facility
- FUT Test Procedures have been submitted and approved by the Agencies

FUT performance will occur on the first production equipment that has successfully passed Factory Acceptance Tests. Additionally, all software versions are those that have passed any required QA processes and is ready for revenue service. Interfaces between systems may be simulated if said interface(s) or back-office configuration is not ready for testing, for the purposes of the lab environment and the general nature of a lab-based test and phase of the project.

Testing of equipment functionality is intended to utilize the full range of fare media and fare structure prepared by the Agencies and approved as part of Final Design Review (FDR). This fare structure may include the fares for each Agency, plus inter-agency and regional fares and stored-value. Since all fare media to be used is provided by INIT. INIT will document and inventory the, its type and usage during testing. Where applicable this test data will be included in the test procedure and report.

Following the conclusion of FUT, including any sub-group FUT testing, INIT will draft and submit for Agency review and approval a detailed Test Report. Using the test procedure as the framework, INIT will indicate, among other things, the outcome of the test, remediation or corrective action needed to complete a test, date and token of personnel executing the test,

notes or comments regarding the test performance or script, and the next action, if any, required. Coupled with the Test Report will be any other relevant data, comments, discussions or decisions, relevant to the test occurrence.

The ngORCA agencies, at their discretion, may assign staff or representatives to witness and/or audit FUT testing their names and associated Agency or ngORCA project affiliation will be included as part of the test report data

The functionality of the test is meant to include equipment capabilities under normal operating conditions as well as equipment response to induced failures and other abnormal conditions. Each type of equipment shall undergo an independent test with results reported separately. To perform the test, sample data will be used representing the full spectrum of events and alarms.

Upon completion of the required transaction testing, INIT will undergo another set of cycle tests to demonstrate the equipment continues to be capable of operating under the environmental conditions specified in the technical specification. These environmental tests will be performed on the Onboard Validator, Driver Display Unit, Wayside Validator, and the Vending Machine. INIT suggests performing two sets of environmental cycle tests. The equipment temperature tests and the sunlight test. All other environmental tests cannot be performed in combination with the cycle test as the test setup will either compromise the environmental condition or will not follow safety requirements for the test personnel.

The temperature test will be performed by putting the equipment into the temperature chamber and bringing it to the temperature required in the technical specification. Once the temperature is reached, the equipment will be taken out of the chamber and then the tests will be performed. During testing, the CPU temperature will be watched and if the device temperature drops under 5°C of the original temperature, the device will be put back into the temperature chamber.

The sunlight test will be performed with a sunlight simulator. INIT will not use a third-party laboratory to perform the environmental cycle tests. The performed tests will be documented by video and photo.

INIT will provide the detailed Test Report to the Agencies for review and approval. The Test Report must certify that there were no failures or variables introduced during the test and that the performance is in accordance with the requirement in the SOW and FDR.

2.7.2.4.5.1.1 FUT Devices

The devices required as part of the scope of the FUT testing are as follows: onboard validators, driver display units, wayside validators, vending machines, and customer service terminals. As part of INIT's draft and submission of the FUT test procedures, each component and associated

test script will have pre-defined criteria or expected result in order to successfully pass. The specified structure and criteria will be reviewed and mutually agreed prior to test execution.

As part of the FUT, INIT will perform cycle tests on each item of equipment. As noted, the full scope will be as agreed with the Agencies. For reference, INIT has included samples of criteria for our project in Honolulu:

Validator & Driver Display:

- 8,000 transactions
- Validator will have a wired connection to background system
- Only Closed Loop cards will be used for testing
- Pass Back time will be disabled for the test
- Log File analysis of the Validator and Driver Display will prove the successful tap

To execute 8,000 transactions on an onboard validator, INIT will use a spinning wheel which simulates the tap of a customer. The fare media will be mounted to the wheel. While spinning, the cards will periodically enter the communication field of the reader and therefore creating a tap. INIT suggests the following configuration for the fare media and transit accounts linked to them:

- (2) Fare Media loaded with Stored Value
- (2) Fare Media loaded with a pass product

Every transaction will be shown simultaneously on the driver display. The PROXmobil3 uses an Ethernet port to communicate with the driver display. To analyze the successful taps, the recorded transactions will be written to several files on the device. INIT suggest splitting the 8,000 transactions in online and offline transaction to ensure both ways of validation.

Beside the audit register counts of the device, the test setting provides an external counter to track the expected number of card taps.

Vending Machines:

The cycle test for the TVMs will cover 8,000 transactions. INIT will perform manual tests which will cover:

Test Case	Number of Transactions	Description
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Test Case	Number of Transactions	Description
Top Ups	2000	Spinning wheel to perform top up transactions. The payment for those transaction will be simulated.
Pass Loads	2000	Spinning wheel to perform load transactions. The payment for those transaction will be simulated.
Fare Media Sales	300	Scripted test that automatically issues a card from the dispenser.
View Account Status	700	Spinning wheel to perform an account lookup.
View Transaction History	1000	Spinning wheel to perform a lookup of the transaction history.
Text to Speech	70	Perform 10 TVM menu transactions per language.
Audio Jack	230	The TVM must automatically enable audio instructions when headphones are plugged into the audio jack.
Audio Button	200	Enable audio instructions when pushing the audio button.
Coin Acceptance	300	Test coin acceptor on a per accepted coin type basis.
Bill Acceptance	400	Test bill acceptor on a per accepted bill type basis.
Maintenance Tests	800	Exchange coin vault, exchange bill vault, exchange card dispenser magazine, load receipt paper.
Total	8000	

Customer Service Terminal:

INIT does not see a way of automating the Customer Service Terminal; therefore, unless we are able to identify a new solution, we suggest performing the tests manually.

2.7.2.4.5.1.2 FUT Back Office & Website

FUT testing for the back-office applications, mobile apps and website covers functionality of each component individually. INIT may use test data and may stimulate interfaces to other software component for FUT testing; each test must demonstrate 100% accuracy in performance of both data exchange(s) and display. The criteria to consider a test as 'pass', must not result in any failure or discrepancy to the agreed functionality as approved in the FDR or otherwise stated in the SOW.

2.7.2.4.5.2 System Integration Test

Once all system components have undergone and successfully completed the FUT, INIT can initiate the System Integration Test (SIT). This test will be performed in the lab, in a controlled non-production environment.

In order to adequately perform the SIT, all devices and system components must be available as defined in the SOW for launch; this includes the installation and configuration of the back office applications, web portal, retail network, agency-specific interfaces, onboard system integrations including CAD/AVL, Washington State Ferries field equipment, DARE, and also the availability of the updated Legacy ORCA back-office and incumbent vendor supplied updated software for validation integration. Further, the system will be provided with test data simulating the Agencies' databases for purposes of this test.

As part of the Inspection and Test Procedures, INIT will include the required test configuration(s), detailed test steps, entry and exit criteria, fare media required, and system integration components. Additionally, during this test phase INIT will be required to coordinate with the Agencies on a regression test procedure for future integration test validation. Ultimately, a successful SIT will demonstrate the installed, integrated system is capable of performance and operation under test conditions.

In order to simulate this kind of performance, the test must include continuous testing across a pre-determined period of time (e.g. where the validator is online and performing validation test for three (3) days without disruption) whereby a prescribed quantity and type of transactions occur, across each device or unit type without failure.

Simulated transactions must occur on the onboard validators and driver displays, wayside validators, vending machines, mobile fare inspection app, mobile fare validation app, and customer service terminal. Each device must experience test validation using each specified fare media type and exercise the fare structure as provided and agreed by the Agencies during FDR.

It is important to note that while the testing nomenclature focuses a great deal on successful test execution, such successes will also be confirmed in the context of system failures, alarms, or

parameter violations. During these tests INIT will confirm the boundary conditions and parameters are met during the test that the appropriate alarms, warnings, alerts, etc. perform in accordance with the agreed design.

SIT Test Prerequisites

- Successful completion of FUT
- Back office system completely integrated into the Agencies network
- One complete test bench with at least one of each component type installed in the test lab

SIT will cover data transmission tests, system monitoring exercises, verification of accounting processes, payment transactions and database performance. Any software modifications will need to be approved by the Agency after the completion of SIT.

Load Testing

To simulate the proposed ngORCA system's peak volume plus the required 200% of peak volume as agreed during design review, the test data will be generated by automated scripts, executed by INIT. The type of data, number of accounts and associated transactions can be discussed and agreed as part of the Inspection and Test Plan during design review as well. To facilitate the discussion, INIT proposes the following for a load testing approach:

- The simulation will produce a steady load of usage and sales transactions
- The test goal is to verify that this load will not exceed any system component or lead to reduced response times for any participating sales channel
- The load is created by a scripted process that will call the online validation service and sales API functions
- The transactions will be exported to the accounting system according to the defined rules

Based on the determined, agreed active, frequently used cards in the system, the simulation will first fill the database over a course of time (e.g. 7 days) with accounts loaded with cash value, day passes and annual passes in a ratio in alignment of the figures relevant to the perceived load.

After the first predefined step noted, the simulation will keep creating cash and pass loads and new accounts over a period of time, however with reduced numbers. In addition to that the simulation will perform fare validations over an evenly distributed time over the course of a day for a defined period.

Disaster Recovery and Redundancy

During the FIT, INIT will draft and submit the plan for performing and demonstrating the Disaster Recovery Plan, including accuracy testing (required for INIT becoming the system of record) and accuracy testing between the AUT and relational database for the specified application and data storage location, as defined during design review as well as any individual system component failover / recovery redundancy measures. As part of the plan, the redundancy or recovery parameters will be predefined and agreed. This test will be a performance and implementation of that plan the specified parameters. Further, the testing will also demonstrate atomicity, consistency, isolation, and durability of the database.

Due to the time critical nature of the project, if during SIT any changes are made to the software, whether to address design change needs in Change Orders or as a result of remediation or corrective action undertaken by INIT or affiliated vendor, the system change will need to be reviewed, demonstrated, tested, and approved. In this stage, INIT recommends the introduction of a Change Control Board (CCB). While at the discretion of the Agencies, this practice lends a layer of oversight, ensuring risk is limited as project launch planning and occurrence is approaching.

During integration testing, each software change will first be delivered to the Agency test facility and be tested prior to deployment. As part of that initial planned delivery, INIT will discussed in advance with the Agencies and when the package is ready, INIT will provide a detailed software delivery paper and installation instructions. The delivery paper will include the tracking ID of the change, the nature of the change, personnel making the request, as well as any device specific information such as version, dates, file sizes, etc.

Successful completion of SIT is one of the critical path items in the overall program schedule; as such, once SIT is complete the ability to maintain system stability and predictability is essential. Procedurally, this means INIT or any vendor may not under any circumstances introduce a change, no matter its size, without prior written approval of the Agencies. Further, changes should be prioritized by level of need and urgency. Where possible, changes should be tabled for post-launch implementation.

2.7.2.4.5.3 Field Integration Test

In the absence of a detailed technical design discussion about the Field Integration Test (FIT), Pilot Test, and Transition Plan (parallel back-office approach), describing or defining them as independent elements poses several challenges and may lead to some confusion.

As stated in the SOW, to perform the FIT, the back-office needs to be up and operational, and all configuration and integration of the system components (all devices, back office applications,

website, retail network, interfaces, integrations including CAD/AVL, Washington State Ferries field equipment, DARE, the Legacy back office and all other aspects of the System) is complete and functional in what will become the production system.

To initiate the FIT, the necessary successive test steps (Pilot Test, INIT as system of record) need to also be clear and fully defined. During the FIT, INIT will demonstrate a production-like setting but can only test with simulated tests without otherwise impacting Agency accounting and reconciliation efforts because there is already a live production system. There may be some discussion with the Agencies around a fixed set of tests, using specified media, where somehow, we simulate production and process live/real transactions in advance of the formal Pilot Test, but cannot be detailed at this stage. As we cannot scrub the database, the lost revenue from the test is less of an issue but the Agencies ability to reconcile and deal with the output from an accounting perspective is unknown at this point and will likely place demand on those resources.

In the SOW, it is noted that the back-office system must be, “fully deployed and operational before the first validator can be operational in the field”. However, once the back-office is operational, where or how any equipment can be deployed and connected in the field is unclear during the FIT test. The FIT test environment restricts how many devices can be installed because the INIT supplied equipment cannot yet accept production transactions without layers of complexity. Further, the tests must be controlled and constrained to predefined procedures and outcomes and as such cannot be widely accessed by the public without risk to muddying data integrity or test performance.

That said, INIT understands as well that there are new stations and services that will be built and ‘ready for revenue service’ prior to the successful completion of these test phases. To accommodate what might be needed there, INIT-supplied Vending Machines and validators, as well as what is defined as part of this test phase, there may be some equipment that is live and available to support this test. Albeit in a modified or restrictive fashion.

To perform FIT, there a subset of ‘test’ equipment that is installed in production but is restricted in access, must be available. To validate the integration, agreement on how the data is transmitted and processed, and agreed criteria for test completion or pass criteria must be defined in the test plan. Unlike the tests in the controlled lab environment, this test is more restrictive and yet of vital importance as we want to validate those same integration tests work as intended in a production state and where possible out of Agency facilities and locations.

Regardless of the constraints and the absence of specificity to offer for this test at the moment, we are confident that our discussions at a technical and project prioritization level with the Agencies can iron out how best to plan and execute the test. Ultimately, there are two key

drivers that need to be realized in this test; one, INIT's ability to perform a full system integration test in a production / production-like environment and two, INIT's ability to successfully plan and test the Transition Plan and parallel back-office, in a brownfield environment prior to execution of the transition itself without otherwise negatively impacting the Agencies ability to collect and reconcile transactions or customers' ability to access and manage their ORCA experience.

One key point to note, should the Agencies preferred transition approach (parallel back-office) change during design review or other discussions, then what we propose will need to be adjusted or modified accordingly.

The above factors aside, INIT understands the general requirements of this test and will work with the Agencies during design review to define the plan and approach for successful execution. As part of that, in preparation of this test INIT will work with the Agencies to define the test procedures and scripts, test set-up and environment including exact locations or configurations, and the necessary entry / exit criteria which will be submitted prior to the test for Agency review and approval. We will estimate the test durations as well during design review; however, the exact proposed and agreed test procedure may be further defined as the specific nature of the test becomes more clear and imminent.

The test procedures will provide for the following categorical inclusions:

- Validation of the back-office configuration and operational readiness
- Installation checklists for equipment intended as part of the test
- Confirmation of data provisioning capable of simulating full operational load of the central system
- Schedule for continuous integration testing with systems online 24-hours per day
- Pre-determined, minimum quantity of transactions per system component (onboard validators, driver display units, wayside validators, vending machines, customer service terminals, fare inspection mobile app, fare validation mobile app)
- Pre-determined minimum quantity of transaction type and fare media type per system component
- Method for testing a pre-determined minimum quantity of transaction through the different user interface elements (CRM application, web portal, customer mobile app, and agency mobile apps)
- Method for testing all available functions of each different user interface element as stated in the previous bullet
- Validation that system alerts or other boundary conditions as defined are adhered to

- System redundancy and recovery validation
- Disaster Recovery Plan simulated demonstration
- Database accuracy validation; demonstrate accuracy between the AUT and relational database
- Atomicity, consistency, isolation, and durability of the database

Additionally, the test data, minimum data volume and transactions to demonstrate full operations load, and data transfer methods will be stated in the provided test procedure as well as the pass / fail criteria for each test.

Following successful completion of this test phase, it is INIT's understanding that the next stages are the final validation steps available to ensure the planned transition from the legacy system to INIT as the system of record, and subsequently the soft launch of ngORCA, goes as planned. As such, the outcome of this test and the capability of determining the successful completion will largely be based on a combination of stringent factors. Subsequently, INIT recommends, following the completion and approval of the test, that the parties engage in a transition meeting and evaluate the test results and forthcoming tests to determine any risk mitigation or other strategies that may need to be deployed or administered. These are purely preventative or cautious considerations and not otherwise required.

2.7.2.4.5.4 Pilot Test(s)

Performance of the Pilot Test as defined poses a series of logistical challenges due to the brownfield nature of this project in general. The Pilot Test, which occurs following approved completion of the FIT test noted above and is the last test in the Integration Testing phase, requires the back-office system is up and running while the field equipment is required to be only partially installed or specifically limited to test-only access. The key distinction for the Pilot is that it needs to occur or validate in some respects, production or production-like environment while not interfering with legacy ORCA performance, transaction processing, or accounting and data reconciliation.

To achieve the Pilot Test to the extent possible INIT proposes a series of controlled, low-impact tests of the following system components, performed quite similar to that which would occur as part of the FIT. Test validation and connection to the back-office as well as data processing will need to be more clearly defined so that it can progress, in a limited fashion, beyond the controlled scripted test. To support the discussion in how to design this plan, INIT proposes for consideration the following test setup(s):

- Web Portal, specific test group with preset scripted test functions to perform for a final 'usability validation' test
- Fare Inspection and Validation Mobile Apps, loaded on a minimum defined number but at least one (1) per Agency that performs the function
- Customer Mobile App, loaded on a minimum defined number of devices and execute performance of a 'usability validation test'
- Customer Service Terminal, temporary set up at each Agency facility, outside of normal office hours
- Vehicle prototype, on either out of service or new buses not yet commissioned
- Vending Machine prototype, on a select station outside of high impact commute hours
- Wayside Validator prototype, on a lower impact platform and outside of high impact commute hours

INIT will work collaboratively with the Agencies to develop a Pilot Test Plan that accomplishes the needs of system testing in an installed basis within the chosen transition approach.

Ultimately, the timing and agreed approach for the Transition Plan will govern how specifically the Pilot Test can occur and at what pace full system installation will need to undertake.

It is noted that following completion of the SIT and prior to the completion of the Pilot Test the system will enter a settling in period. During this time, INIT can proceed with the fleetwide system installation and the Agencies can perform their own ad hoc tests. However, in this same time frame, to achieve the transition plan (using the back-office parallel approach) as currently understood, INIT must become the system of record prior to the full fleet installation.

If INIT is not the system of record and system-wide installations are required, the INIT supplied equipment would not be able to 'speak' to the legacy back-office. As such, installations would be required in a side-by-side state and decommissioning of legacy equipment could not occur until the start of the SAT. Further, in this scenario the INIT installation would not be able to repurpose the existing installation materials driving up both cost and schedule as well as a potential unforeseen impact to ORCA riders.

Second to that, if the Agencies are performing ad hoc tests, the scope and data for the tests needs to be carefully coordinated and planned. While not intending to limit the Agencies test capability, if the system is not 'live' for ngORCA, similar to the previous integration phase, the same production-based constraints apply and need to be considered in the planning of such tests due to the reconciliation or settling action required.

While it may be that INIT's understanding of the test and Transition Plan are not in full alignment with the Agencies, it is important that in the absence of additional clarification, that INIT make clear the constraints we are seeing currently based on what we envision the system transition to look like for Agency consideration.

That understood, based on INIT's understanding of the Agencies preferred transition approach and the way in which the data should be handled we propose that the following occur:

- Pilot Test is approved
- During the Pilot INIT provides validation that it can reconcile the ngORCA back-office in preparation for the transition with that of the legacy ORCA system
- INIT becomes the system of record and all processing is now managed and handled by the INIT provided system (ngORCA is realized)
- System Settling In starts
- INIT and the Agencies begin the system-wide installation efforts
- The Agencies perform ad-hoc testing as desired

Upon completion of the above tasks starting with Pilot Test approval, once 80% or so of the system equipment has been installed and the system has been able to validate performance against the metrics provided for acceptance testing, the Integration Testing phase should be concluded and approved.

Notably, the percentage of installation completion should likely include full installation of all Customer Service Terminals and Vending Machines; however, since King Country Metro and Community Transit are performing their own installations, INIT cannot control the schedules of completion for both their onboard and wayside validation equipment. Conversely, both Agencies could complete their installation work in advance of INIT and as such, 100% of equipment is factored.

Currently, the possible variances are not possible to be determined at this point but if there are challenges to system-wide installations that INIT cannot control or impact, consideration to start the acceptance test should be reasonably undertaken.

2.7.2.4.6 System Acceptance Testing

The System Acceptance Testing test phase includes the following:

- System Acceptance Test
- Final System Acceptance

Once the Pilot Test has been approved and INIT becomes the system record, the acceptance testing can begin. INIT understands that in general, the SAT will be performed in the production environment with all components, subsystems, and third-party networks completely functional, operational, online, and in service; fundamentally the ngORCA system must be live.

As with each test phase, INIT will provide the requisite procedures and also test reports. In this case, the report will validate the test criteria and that it was met and the test passed based on the stated preconditions or metrics.

2.7.2.4.6.1 System Acceptance Test

The System Acceptance Test (SAT) is intended to validate the performance of the fully installed system as required for project completion. While intended to be complete as part of the final integration test phases, any existing functionality requiring deployment must be in place and the requisite tests approved, prior to the actual start of the SAT since the SAT serves to verify that the System and all provided equipment meet the performance requirements for project completion. INIT will be responsible for supporting all elements of SAT and as part of that will meet regularly with the Agencies to discuss progress, outcomes, and status of the test(s).

INIT's submission of the SAT Inspection and Test Plan will detail the system components, tests and data collection, and metrics intended to be validated as part of performance criteria. During the SAT, and as validated by the supplied test reports, the metrics must be adhered to; meeting or exceeding not less than the stated minimal performance standards. In the event INIT's performance of the SAT is sub-standard, as with the previous test phases, remedial action will take place and provided as part of the in-scope requirements to the project.

In the event INIT is unable to meet a performance metric during SAT, it is understood that the SAT duration may be extended until all performance requirements are met. The performance requirements and test durations will be those mutually agreed-upon with the Agencies and made part of the Inspection and Test Plan.

The INIT Proposed Project Schedule details a 60-day duration for the SAT test; however, an additional 60 days of slack have also been allocated in the event a stated metric has not passed in accordance with the agreed requirements. That said, should further failure events arise that extend the duration of the test component that slack duration may extend further as time is needed for the metric to be achieved.

2.7.2.4.6.2 Final System Acceptance

Achievement of Final System Acceptance (FSA) tends to comprise a combination of factors including initiation of the start of warranty if not done so already. Specific to the test phase, FSA

cannot be achieved without signed written agreement the SAT has been carried out successfully and approved by the Agencies.

While the SAT is often the primary driver of FSA due to the rigorous nature and system-wide validation that is undertaken as part of the test, there are often varying other factors that exist such as: sign off that all system equipment in scope to INIT has been installed, tested, and operational, equipment or spares and fare media have been delivered in accordance to the agreements set forth, training has been validated as delivered and approved, demonstration of the Disaster Recovery Plan has in fact been performed, validated, and approved, as well as any other system component delivery has been made in full.

INIT's creation and use of a Requirements Traceability Matrix (RTM), mapping the requirements through the design, build, and test phases, has been a useful tool in helping to organize and sign-off system acceptance.

In addition to the system validation points noted above, there are additional FSA-based activities that need to be undertaken to ensure full compliance with the overall project deliverables. Activities include but may not be limited to INIT's compliance against all contractual requirements (technical or otherwise), the required deposits to escrow have been made, and resolution or agreement to resolve for any open or outstanding issues to be made part of a software release have been agreed. It is important, with respect to the final point regarding software deliveries, that FSA completion not be unduly withheld for issues that are low priority or not otherwise made part of the SOW.

Following INIT's provision of validation that the above stated items have been met, INIT shall then submit for Agency approval a formal request for project completion or FSA. Upon completion, the Agencies will provide the associated certificate of completion.

2.7.2.5 Training

As an experienced integrator of Electronic Fare Collection and Computer Aided Dispatch systems for the transit industry, INIT understands the importance of training to the overall success of the project. Proper training allows ORCA staff and other stakeholders to fully understand the features of the new system, it's current benefits and how, as the agencies offer to the riding public increased operational efficiencies, the system will continue to provide increased rider convenience and satisfaction.

2.7.2.5.1 General Requirements

INIT will provide a comprehensive training plan and subsequent program that meets the training needs of the agencies. The training plan will emphasize modern, modular training delivered

across multiple environments. Our plan will define each course including: instructor credentials, course methodology and approach, class content, training aides, and evaluation criteria for the attendees.

The training program is designed with consideration of multiple and distinct target audiences, learning methods, and presentation techniques. Working with the ORCA team and key stakeholders from each member Agency, INIT will facilitate a series of specialized stakeholder interviews and coordination meetings to discuss critical business processes related to planning, operations and maintenance of tariff / fare collection activities. The business processes that emerge will be folded into the training materials to reflect end-to-end procedures that span multiple organizational units, member agencies, software/information system, operations and maintenance groups. We have found, in developing training for payment systems, that a business process may apply to more than one software application, and that a software application may be used by different organizational units within a single organization. Our training method is business process oriented to target role-based training.

Our approach ensures that the transitions between organizations and applications are accounted for including manual and hand-off requirements. Incorporating the end-to-end business processes in the training provides a clear and coherent view of each training participant's role within the ORCA program.

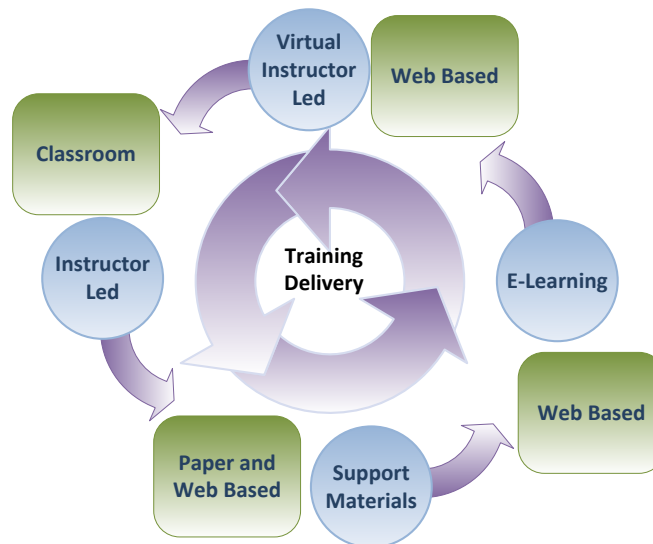


Figure 2-8: Modern, Modular Training delivered across Multiple Environments

The diagram above is intended to represent INIT's capabilities to provide quality training using multiple delivery methods including classroom instruction, written training manuals, Web based e-learning and Webinars. The selected method of instruction depends on the audience, logistics, customers preferences and other customer driven requirements.

INIT's approach to creating a comprehensive training program includes a combination of app-specific content (e.g. Validator Operations), functional role (Customer Service), and on-the-job or similar small demo or walk-throughs. At the start, we will approach the content and functional role training first; from there, we customize the method of delivery according to need. Taking this approach, we can ensure trainees have a solid understanding of the technology, equipment, and functions they will interface with or need to undertake as part of their job or role within the ngORCA system and its operation or service.

While each Agency is unique, as well as their roles and responsibilities, for the purposes of understanding INITs methodology for training, we have outlined a summary level of roles of a system similar to what ngORCA will entail. Taking this approach allows us to guide the understanding of the audience a little further, especially when reviewing the courses in the section below:

- **Vehicle Operator** – persons that will operate on-board equipment such as the validator and DDU; they will need knowledge of these specific components and may find benefit from seeing and learning about the Web Portal and Mobile App
- **Equipment Maintenance** – persons that will be responsible for the repair, maintenance, installation, decommissioning, monitoring activities of equipment; they will need knowledge of these processes and may find benefit in early participation in design discussions and also in learning about the vehicle operator targeted learning
- **Customer Service / Mail Center / Call Center** – groups of staff that provide direct customer service engagement whether in person or through push/pull actions (e.g. fulfillment at the Mail Center or phone support via the Call Center); they will need specific knowledge of the different applications (CRM, CST, Web Portal, Mobile Apps) but could also benefit from an understanding of the equipment functions
- **Finance** – persons responsible for the accounting and processing of system revenue, apportionment, settlement, and the various rules and integrations associated; key account-based functionality is critical, but an understanding of other applications may be beneficial as well (e.g. Web Portal)
- **Institutional Administrator** – persons that manage the large business, school, and/or social services accounts that provide transit benefits or other ridership opportunities for their constituents; integral knowledge of the CRM and the Institutional portion of the Web Portal are key while a common understanding similar to that of a customer service resource would also be valuable
- **System Administrator, Operations** – back office technical staff responsible for the overall system health and performance and will possess and integral knowledge of the

overall system architecture and configuration parameters; commonly engaged in the software deployments and testing a core knowledge of the specific system components is important to supplement their knowledge of the system

- **System Administrator, IT / Network / Database** – back office technical staff responsible for the overall system architecture, network infrastructure and connections, and database administration and health including uptime and disaster recovery; a detailed knowledge of the app installation and configuration is central to their role while a complimentary understanding of the application function is also very helpful
- **Integration Support / API Administrator** – during the project phase INIT will govern this role more dominantly; however, because an account-based system relies heavily on integration, a resource with in-depth knowledge of the APIs and integrations will prove valuable, especially in the event of future integration endeavors or opportunities
- **Fare Inspection** – persons responsible for validating fares region-wide will need a detailed understanding of the Fare Inspection App and the individual Agency policies that result in action thereafter; a supplementary understanding of fare payment methods and the means by which value and products can be acquired will also be helpful
- **Promotion and Marketing** – persons that will be responsible for the brand, awareness campaigns, and/or other advertising opportunities; while a common understanding of the customer interface points is important, a detailed knowledge is not inherently required. However, if persons in this group will be responsible for managing Web Portal content via the in-app CMS (Umbraco), a detailed understanding of the site and the CMS software is important. Similarly, they should have a detailed understanding of the Mobile App to ensure the common UI/UX interface efforts undertaken in design are maintained through operations

INIT suggests that the delivery of training starts with the classroom sessions for the most part. For those that may have difficulty attending, these sessions can be interactive online via a web-conferencing set up. For the external hardware, such as the wayside or onboard equipment, it will likely be proposed in two portions where the operator training is in a classroom while the maintenance and repair on-site. In taking this approach, we can optimize the content and delivery in a some-what controlled environment.

As trainees and teams have a more comprehensive understanding of the ngORCA system and Agency trainers attending the train-the-trainer courses have had the opportunity to deliver their Agency-specific courses, we will then take the next steps of soliciting and collating feedback. Through this approach we aim to identify the 'what was missed' items or gap analysis. In some cases, it may mean only that a refresher of the material is needed. As we gather this feedback INIT will then work with the Agencies on defining the next iteration of training which may entail

supplemental app-specific training, expansion of a use-case to include some additional information that may have been missed, or a hands-on walk through. While the need to more clearly identify the method, generally speaking these supplemental elements will be supported by an onsite system engineer from INIT or via e-learning as part of a web-conference.

When the transition and cutover to the live ngORCA system is nearer and the training need more sporadic, it is important to note that the INIT staff of engineers are on-site and available for questions, clarifications, or on-the-job training as well. These efforts may be less formal; however, INIT will continue to be a presence to ensure successful implementation of the system and knowledge transfer for successful Agency operation.

The design and development of the training program will be comprised of several INIT team members although the Training Plan itself will be led by Paula Okunieff (an INIT subcontractor brought on specifically for ngORCA as a Business Analyst) and Curtis Stone (INIT Technical Trainer and documentation specialist) specifically.

Utilizing her extensive background in facilitating meetings and analyzing business process needs Ms. Okunieff will head the requirements gathering, needs analysis discussions, and interviews with the Agencies. Ms. Okunieff brings an added layer of organizational and technical expertise having provided business analysis that is incorporated in planning, manuals or training materials for account-based payment systems (including financial systems, cash collection, operations / maintenance for bus, light and commuter rail, multiagency roles and responsibility, and cross organizational operations / maintenance).

With more than 20 years of combined experience in technical training and writing as well as an intricate knowledge and understanding of INIT systems, software and hardware, Mr. Stone will compliment Ms. Okunieff's findings and apply the appropriate INIT-specific knowledge, source materials, lessons-learned, and be able to navigate the INIT environments and processes.

Combined both Ms. Okunieff and Mr. Stone will identify with the INIT Project Team the appropriate resources necessary for course delivery. Instructors may include but are not limited to both Ms. Okunieff and Mr. Stone, Thomas Schaich (Lead Engineer), Jim Stamateou (Supply Chain and Installation Lead), Benjamin Sigrist (SW Engineer, System Monitoring), David Steigleiter (Lead SW Engineer, Back Office Ticketing Applications), Bastian Wolf (SW Engineer, Finance Systems), as well as a team of third-party SMEs from our partner integrations: E-BROs, Marathon Consulting, Bytemark, Finance Integration, and Salesforce. Additionally, it may be determined for INIT to source additional technical expertise to support some of the in-depth and extensive back office systems and administration courses.

2.7.2.5.2 Training Plan

The training program is initiated by INIT as part of the first design review following notice to proceed. This first draft of the Training Plan will outline INIT's suggested approach and methodology specific to ngORCA. Based on our experiences and in consideration of the specific technology and systems that will comprise ngORCA, we will propose the courses, materials, equipment and so forth as well as timing for when courses could occur. Our approach overall is to provide a training program that is solution specific and meets the needs of the Agencies.

As soon as we are able or as part of the first design Review (whichever comes first) INIT will begin to coordinate a series of meetings with Agency training SMEs or designees to discuss further the specific and unique needs of ngORCA. These discussions will occur collectively to ensure the needs of the region are clear as well as individually to cross-validate the unique or specific needs of the associated Agencies individually. From these discussions INIT will refine the Training Plan in an iterative manner until a robust, comprehensive program has been established with clear and concise deliverables.

As we initiate these first steps, INIT will look to address the broader ngORCA (regional) needs which we anticipate to generally speak to the collective group and core system elements. Once we have these requirements clearly outlined and established we will then take further steps to engage with each Agency individually and perform a gap analysis. In so doing we aim to ensure we have a foundational understanding of each Agency's unique needs so that we can validate with them the courses that have been established that will meet their needs and better tailor our delivery of the material so as to fill any gaps and/or ensure heightened concerns are fully addressed. In some instances, it may be more fluid to adapt a regional training course to include some additional detail to address the needs of an Agency whereas other instances may require other alternatives (e.g. on-the-job training after core training has been delivered for a more hands-on experience).

In these early stages INIT will suggest a rough timeline for when we believe the training should occur; however, we will not specifically detail the individual courses until they have been defined and agreed with the Agencies. We take this high-level approach at the start to both reduce confusion as well as ensure the Agencies are clear that we will find a time and date format that meets their specific business need(s). Once this information is available and agreed, the schedule as well as the plan will be updated. Generally speaking, we find that the Training Plan is best served as an evolving or living document.

INIT's training plan will incorporate an approach to distribute training to the Agencies directly from our experienced staff and from our major subcontractors. The training plan will meet the following core objectives:

- Training shall include course development, instructors, and all handouts, materials and classroom aids required to conduct the training
- Practical training on equipment shall occupy a significant portion of all training classes
- The training presentations and material shall be in English
- Instruction shall cover equipment familiarization and systems operation. The minimum training is that which is necessary to bring those employees designated to the level of proficiency required for performing their respective duties including:
 - Familiarization with the general system design concepts and features
 - Hands-on training using the actual system or simulators
 - The ability to recognize any transit specific alerts designed into the system
 - Thorough and clear demonstration of the use and operation of the on-board equipment
- Train-the-trainer Instruction shall prepare agency trainers for delivery of classroom and hands-on training, as required, using the relevant hardware and software
- Deliver instruction on the setup, operation, and configuration of the training equipment as required
- Ensure through testing or demonstration, that agency trainers and trainees have ability to perform each task associated with all system functionality. This is to be an objective for each task learned within each class

The INIT Training System provides trainers and trainees with all instructional material and equipment necessary to conduct training within their organization.

2.7.2.5.3 Training Materials and Equipment

To appropriately facilitate and complement the training course being delivered, INIT will supply the Agencies with a series of course materials as well as the requisite equipment and software to facilitate a hands-on experience during the training course. Both the material and equipment will be designed or provided with the appropriate level of Agency customization.

For example, to support the courses listed in the section below, INIT would draft and create the following operational manuals:

- Customer Account Management Mobile App Operations Manual
- ORCA Web Portal Operations Manual
- Customer Relationship Management (CRM) Operation Manual

- CRM Salesforce Integration Manual
- Point of Sale (POS) Operation Manual
- Customer Service Workstation (CSW) Operations Manual
- Finance - Sage Accounting Interface Manual
- Finance - INIT Accounting System Integration Manual
- Finance - Revenue Management Operation Manual
- Finance - VASA/Reports Operation Manual
- Fare Inspection Operation Manual
- Validator Operations Manual
- Driver Display (DDU) Operations Manual
- Ticket Vending Machine (TVM) Operations Manual
- Vehicle Equipment Maintenance and Repair Manual
- Wayside Equipment Maintenance Manual - Validator
- Wayside Equipment Maintenance Manual - TVM
- Tariff Management Operation Manual
- Master Data Management (MDM) Operation Manual
- Admin Tool Operation Manual
- Device Data Manager (DDM) Operation Manual
- Parameter Management Operation Manual
- Online Crypto Manager (OCM) Operation Manual
- Form Designer Operation Manual
- Asset Manager Operation Manual
- Card Inventory Operation Manual
- SAIT - Back Office Architecture Manual
- SAIT - Network Architecture Manual
- SAIT - Database Design and Operation Manual
- SAIT - CRM App Manual
- SAIT - Customer Mobile App Manual

- SAIT - Web Portal Manual
- SAIT - Fare Inspection App Manual
- SAIT - Back Office Apps Manual

In addition to the manuals noted above, each classroom course will typically include a PowerPoint presentation as the means to navigate the material being addressed. The slides below are examples from a typical presentation during a classroom style training course (entire course not shown):

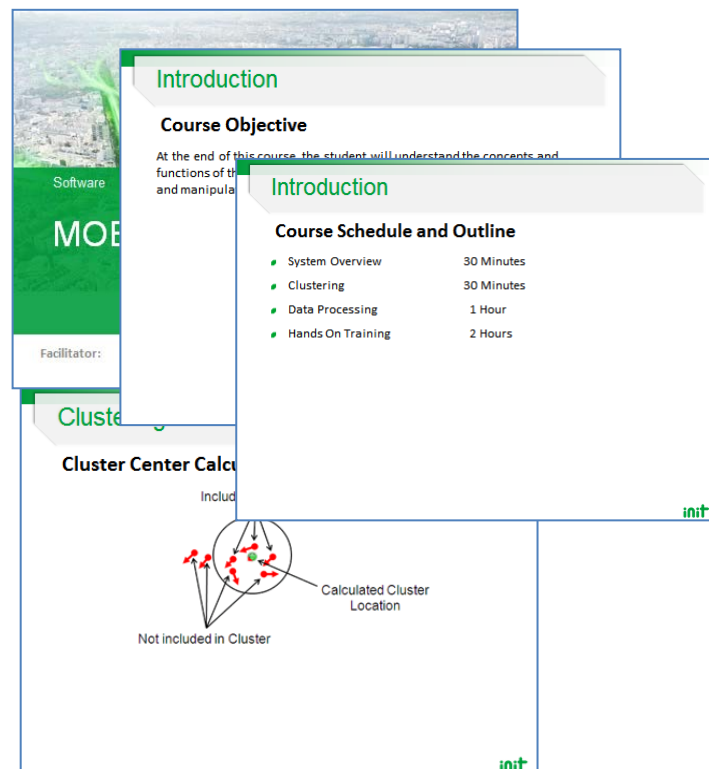


Figure 2-9: Sample User Training Materials

To further facilitate a classroom session, INIT will also provide guides for both the instructors and trainees. In some instances, quick reference guides will be provided as well but depends on the topic of the course and the usefulness a quick reference guide would provide.

Training equipment can either be utilized from other sources and returned or purchased solely for the needs of the training program. To deliver the courses as outlined below, the training in the classrooms will need to be equipped with computers capable of being loaded with the applicable software and peripherals, mobile devices such as tablets and smartphones, applicable fare inspection device or a smartphone capable of operating the fare inspection app, and also the various ngORCA system equipment such as smartcards, the validator, DDU, and vending

machine. Additionally, each onboard set up will need to be configured with a Bus-in-a-Box (BiB) to support Agency integrations between the validator and the DDU. However, due to the size and general footprint of the vending machine, the training itself can vary in its methods (e.g. onsite at a vending machine in the field or in the regional test facility).

To provide a brief outline and description of the various materials, including documentation and equipment, please note the table below.

Table 2-3: Instructional Materials Included

Training Materials	Description
Instructor Guides	The Instructor guide leads an instructor through a training class providing recommended verbiage and when to show each PowerPoint slide.
Power Point Presentations	The power point document is the primary presentation material for instruction. This document is matched directly to the Instructor guides.
Trainee Guides	The trainee guides leads the trainee or student (core user) through the training class. This guide shall be used as a complement to hands-on and classroom training provided by instructor.
Hands On Training	Where applicable, INIT shall provide hands-on training on actual equipment or through the use of training equipment to simulate the actual behavior of the equipment for day-to-day operations.
Instructor Evaluation Sheet	INIT shall provide trainer evaluation comment sheet to assess the training course and preparedness of training instructor.
Operation Manuals	INIT shall provide copies of all user and training manuals as they pertain to the specific training class. One complete manual set per student shall be provided per course.
Quick Reference Guides	Where applicable, INIT shall provide quick reference guides for each training course. INIT intends to provide guides for specific areas of instruction related to specific user operations. INIT shall provide the quick reference

Training Materials	Description
	<p>guides for the following groups of users:</p> <ul style="list-style-type: none"> Operators Ticket Inspectors Customer Service to include the Customer Mobile app, Vehicle Maintenance, VM Maintenance, and others based on the defined needs of the Agencies. <p>Notably, some courses may not need a Quick Reference Guide due to the detailed nature of the topic (e.g. Finance and Accounting) and need for in depth and precise information or content to guide the user to the appropriate needs of their role.</p>

2.7.2.5.4 Training Courses

As described above, INIT will undertake a multi-step process with the Agencies to design and draft the Training Plan; with flexibility to define the materials and equipment needed, identify the training staff, locations(s), courses, and schedule. In some cases, customized levels of Agency-specific needs can be accommodated; these efforts are done as needed to ensure the adequate and appropriate training of Agency staff. In effort to provide the Agencies with additional insight and to illustrate one example as to how INIT initiates and plans training, below is an outline of how we might approach 'Customer Service'.

Step One: First draft of Training Plan

The first draft of the training plan will detail our two-prong approach: first, suggest app-specific training for all Customer Service staff and second, suggest a manager-level of train-the-trainer functions course.

App-Specific Customer Service Courses

The app-specific courses will give trainees the hands-on experience of each system touch point (hardware and software) for their role; at the moment these courses would be the CST, CRM, and then a combined course of Web Portal and Customer Mobile App. This course is not designed for use cases or 'what if' type scenarios but rather to teach trainees the specific functions and actions of the software.

These are courses geared primarily for Customer Service staff members; however, they can also be helpful to marketing or promotional staff as well as system administrators. Irrespective of audience, these courses will be a pre-requisite for the function-specific course described below.

The updates to the Training Plan for the courses as noted above would then include the following detail:

- **Audience:** Customer Service Representatives and Customer Service Managers
- **Purpose:** provide customer service staff the necessary knowledge and understanding of the software, applications, and equipment they will use or that customers will encounter
- **Method:** Train-the-Trainer
- **Setting:** Classroom
- **Equipment:** at least one computer and mobile device per 2 persons, internet connection, access to apps (pre-loaded)
- **Materials:** Operations Manual, Instructor Guide, Student Guide, and a PowerPoint Presentation
- **Size:** 10-12 participant maximums

Function-Specific Customer Service Manager Course

Once users understand the various applications associated with the customer service functions, the next step is understanding at a macro level how a CSR can perform the functions of their job holistically.

This course will be designed with the Agencies and their input specifically; while INIT will endeavor to provide a broad range of use-cases for this course it is important to note that different Agencies could have some unique treatment of specific steps based on their standard operating procedures. Because of that, and the myriad of possible use case samples, we propose this course as a train-the-trainer and/or Customer Service Manager level training. Using this course as a foundation for managers can then allow Agencies to customize further either their material or course as needed to further address the nuances of their Agency or constituency.

For example, if a patron has lost their card and come into an Agency ticketing office for support it will be important that the Customer Service Representative understand what the patron may have done or experienced on the Web Portal or Mobile App and then will need to know the necessary actions to be performed on the CST or within the CRM. At an Agency customization level, they may want to add some additional points or steps to compliment that.

The updates to the Training Plan for the courses as noted above would then include the following detail:

- **Audience:** Customer Service Managers or Trainers
- **Purpose:** provide managers with the knowledge and understanding of how the applications are used in day-to-day operation as well as the skills and information necessary for them to train and manage their staff
- **Prerequisites:** CRM, CST, Websites, Mobile
- **Optional:** equipment specific courses (e.g. Validator Operations), System Overview
- **Method:** Train-the-Trainer
- **Setting:** Classroom
- **Equipment:** at least one computer and mobile device per 2 persons, internet connection, access to apps (pre-loaded)
- **Materials:** Process Guide, Instructor Guide, and a PowerPoint Presentation
- **Size:** 5-8 participant maximums

Step Two:

Requirements / Needs Analysis and Information Gathering

Once the first draft of the Training Plan has been reviewed and evaluated by the Agencies, INIT would then look to engage in a series of meetings with the training-specific SMEs. During these discussions we would want to review the Agency feedback and discuss in an open forum, identify misses and revisions needed, common points of interest or concern, and so on. During these discussions INIT would hope to obtain the document-specific feedback and also understand more information such as:

- How many Agencies need this training / have a Customer Service office and/or staff
- How many Customer Service offices there are, locations
- How many Agency staff per office and in total
- Describe the role of the CSR in the context of your Agency
- Describe the role of the CRS in the context of ORCA for your Agency

Step Three:

Materials and Equipment Provisioning

To facilitate the efforts associated with the preparation and delivery of these courses, we would propose the following equipment and materials be utilized:

- Operations Manual (app-specific) to describe the functions of the application
- Presentation for trainees to follow along with the course content
- Instructor Guide to provide the trainer with a flow of the course as well as key points to address or discuss
- Trainee Guide to provide the trainee with a flow of the course content and space for notes or questions
- Process Guide to describe functional examples and use cases or 'how to' scenarios for actions that require the use of more than one application and where applicable clear understanding of where the INIT-provided system ends and other Agency interfaces or procedures begin
- CST environment, mobile devices such as a tablet or smartphone, computer with the CRM software (if different from the CST environment)

In light of the above process and with our current understanding of the ngORCA system, below is a table of courses we believe are best suited to meet the needs of the Agencies. In this table we have organized it by target audience, provided the anticipated durations, identified a secondary audience, proposed quantity to be delivered, and what methods they should be delivered in.



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Table 2-4: Training Courses

ID	Course Description	Dur	Primary Aud	Secondary Aud	# of classes	Method	Comments
Customer Service							
1	Web Portal and Customer Mobile App	4 hrs	CS, IN	SAIT, SAIN	9	TTT	1/Agency + 1 additional for KCM and ST
2	Customer Service Management (CRM) Operations	2 days	CS, IN, SAIT	SAIN	9	TTT	1/Agency + 1 additional for KCM and ST
3	Point of Sale	8 hrs	CS, SAIT	SAIN	7	TTT	One per Agency
4	Customer Service Workstation Fulfillment	2 hrs	CST, SAIT	SAIN	7	Direct	One per Agency
5	Customer Service Functions	8 hrs	CS, IN	SAIT	7	TTT	One per Agency
Finance							
6	Accounting and Financial Management				4	Direct	One per KCM, ST, CT + 1 combined for KT, ET, PT, WSF
	Sage Accounting Interface Manual	(2.5 days)	F, IN	SAIT			
	INIT Accounting System Integration	(8 hrs)	F, IN	SAIT			
	Revenue Management	(8 hrs)	F, IN	SAIT, SAO			
	VASA/Reports	(4 hrs)	F, IN	SAIT			
Fare Inspection							
7	Fare Inspection Functions	2 hrs	FI, CS, SAIT	SAIN	9	TTT	1/Agency + 1 additional for KCM and ST
Equipment Operation							
8	Vehicle Operations (Validator and DDU)	2 hrs	VO, CS	EM, SAO, FI	8	TTT	KCM=3, CT=2, ET=1, PT=1, KT=1

ID	Course Description	Dur	Primary Aud	Secondary Aud	# of classes	Method	Comments
9	Vending Machine Operations	2 hrs	CS	EM, SAO, FI	7	TTT	One per Agency
Equipment Maintenance							
10	Vehicle Maintenance (Validator and DDU)	4 hrs	EM	SAIT	8	Direct	KCM=3, CT=2, ET=1, PT=1, KT=1
11	Wayside Maintenance (Validator and TVM)	2.5 days	EM	SAIT	3	Direct	2 for ST, 1 for combined Agencies
System Administration, Operations							
12	Tariff Management	8 hrs	SAO	SAIT	7	Direct	One per Agency
13	Master Data Management and Admin Tool	4 hrs	SAO	SAIT	7	Direct	One per Agency
14	Device Data Manager and Parameter Management	4 hrs	SAO	SAIT	7	Direct	One per Agency
15	Online Crypto Manager	8 hrs	SAO	SAIT	7	Direct	One per Agency
16	Asset Management and Card Inventory	2 days	SAO	SAIT	7	Direct	One per Agency
17	Form Designer	4 hrs	SAO	PM	7	Direct	One per Agency
System Administration, IT							
18	Back Office Network Architecture and Configuration	5 days	SAIT	SAO	7	Direct	One per Agency

Table Legend / Definitions Key:

- ID = Course Indicator; INIT is suggesting a total of 18 unique course topics
- Course Description = General description of the course, under the following functional areas:
 - Customer Service
 - Finance
 - Fare Inspection
 - Equipment Operation
 - Equipment Maintenance
 - System Administration, Operations
 - System Administration, IT
- Dur = Duration of the class
- Prim Audience = INIT's recommendation of who the Primary Audience is; abbreviations as follows:
 - CS = Customer Service
 - IN = Institutional Programs
 - F = Finance
 - VO = Vehicle Operator
 - FI = Fare Inspector
 - EM = Equipment Maintenance
 - SAIT = System Administrator, IT
 - SAIN = System Administrator, Integration
 - SAO = System Administrator, Operations
- Sec Audience = INIT's recommendation of who the Secondary Audience is; these are often on a need to know but that the knowledge may be obtained in an alternate manner. Abbreviations are as noted above for the Prim Aud
- Number of classes = INIT's recommendation for the number of classes per course area. In areas where only one class is suggested, it is INIT's understanding that the Agency personnel for that course act as the central administrator of that function and as such a targeted / minimal (less than 10) audience. For courses where multiple sessions are

proposed the understanding is that INIT would deliver one applicable per Agency as would be the case for a course such as Vehicle Operations or a small subset for targeted audiences as might be the case for Customer Service. However, that total numbers can be increased or decreased based on the need or preference of the Agency.

- Method = the way in which INIT suggests the class take place
 - Direct = INIT will instruct the Agency personnel performing the function
 - TTT = Train-the-Trainer where INIT will instruct Agency trainers or other personnel who will in turn instruct additional Agency team(s)

2.7.2.5.5 Training Course Materials

2.7.2.5.6 Remote, Video and E-learning

In addition to meeting your core objectives as described above, INIT also offers remote, video based (online) and E-learning training services as shown in Figure x.x above. For trainees not able to attend classes personally, they can participate remotely via WebEx.

INIT also has experience developing video based and e-learning curriculum. Typically, we contract these services out to local companies (often DBE's) specializing in developing training programs.

Video Based Training typically involves capturing the instructor's video screen and two video photographers, one fixed and the other roaming. Next the video and audio will be post processed, incorporating screenshots and slides to create dynamic and engaging videos. Edited footage of video recordings will remove all non-relevant material, and include title captions, section separators, and cover and wrap-up animations. Graphic and text support to be provided in the videos will be shared with the ORCA agencies for approval prior to the start of the final post-production process. All footage will become the property of the ORCA agencies.

Interactive E-learning training can be developed using tools such as Articulate Storyline. Articulate Storyline is designed to deliver an ideal learner experience. The player hides sidebar menus and the browser while delivering mobile-friendly playback controls optimized for every screen size and orientation. Supported are touch screen interfaces so learners can swipe, drag, and pinch-to-zoom on tablets and mobile devices. The ORCA agencies will participate as Storyboards and voice-over scripts are developed.

Again, video based and E-learning curriculums are not a requirement of the RFP; however, INIT is happy to discuss providing these services.

2.7.2.6 Manuals

INIT will provide instruction manuals that describe and illustrate in detail how to manage, operate, and maintain the next gen ORCA System delivered under the contract. The manuals will include detailed documentation for all equipment, systems and software and will be submitted in hard copy and electronic formats as defined during design review. Sample manuals can be found on each USB flash drive that are submitted with each proposal copy and originals.

Most documentation will be provided in Microsoft Word while supplementary materials will also use such formats as Microsoft Excel, Visio, PowerPoint, and Adobe Acrobat. If sensitive information is included, INIT will indicate as such; however, no data or information will be encrypted. The file format will depend somewhat on the type of document; below is a general breakdown with a macro-view:

- Manuals and illustrated parts catalog(s) (PDF and Microsoft Word)
- Electrical Computer-Aided Design (CAD) (PDF)
- Schematic drawing(s) (PDF)

Some documentation may include Visio diagrams as imbedded images. The native files will be provided to the Agencies as either an exhibit or separate file.

2.7.2.6.1 Manual Content & Format

INIT understands the importance of well written precise documentation written in terms that are meaningful to users. Care will be taken to provide easily understood explanations and step-by-step instructions with cross-references to all drawings, diagrams and photographs.

The schedule and submission of the manuals as described below will be in accordance with the delivery requirements defined in the contract. Revision control of each manual will be recorded on a control list in the front of each document. The list will be updated with each revision and will show the date of each revision and the page reference. INIT will maintain all updates or revisions in the document control lists for each document. Prior to release to the Agencies, INIT will ensure each document has been peer reviewed by an appropriate technical level resource or professional technical writer to ensure the accuracy, completeness, and thoroughness of the content is obtained and relevant for Agency review and consideration.

Each manual provided will include a combination of tools to best communicate and where needed educate, the reader in all matters related to the material such that the Agencies will be able to operate, maintain, troubleshoot, diagnose, and perform repair of the system and its components elements. Such tools may include but are not limited to:

- Narrative text and descriptions
- Step-by-step procedures
- Illustrations, drawings, diagrams, images, or schematics
- Parts lists
- Troubleshooting guides
- Repair and replacement procedures

In many cases a document will use a combination of the above to provide the best possible explanation or instruction for the reader. Where this occurs, care will be taken to ensure cross-references are provided. For additional information related to the content specific to a functional area of the system, please refer to the Required Manuals section below.

While training courses will use the operator and maintenance manuals as a key source of education, supplemental materials specific for training such as instructor guides, student workbooks, presentations, or quick reference guides will be separate. Where applicable or in support of the readers understanding, references and cross-references will be provided.

The manuals will be concise and complete as possible ensuring that information gathered during installation and acceptance testing, and throughout the warranty and Software Maintenance Agreement (SMA) terms, will be incorporated into the manuals to be submitted to the Agencies.

As the different phases of the project continue, it is likely that revisions and other adjustment may be required of the documentation to reflect changes in or clarification of the actual implementation. In consideration of such circumstances, the information gathered from system installation activities, System Acceptance Testing, and the Warranty Period will be incorporated as needed to ensure appropriate reflection of the system.

2.7.2.6.2 Required Manuals

The system manuals that INIT will provide will be organized initially into high level categories in effort to guide its intention and/or user or audience. Those categories are: Functional Operation and User, Repair and Maintenance, Parts and Component Catalog(s), Special Tools, and Original Equipment Manufacturer (OEM).

Device and Software Manuals

Operating Instruction manuals are written with the intent to provide the reader clear and concise information on the form, function, and purpose of the given system component. The general outcome of each manual will be such that the reader has a core understanding of the

subject and is able to use it for the general purposes of their role. Collectively, the manuals INIT provides will ensure a complete understanding of:

- System equipment and associated peripherals
- Location, function, and operations of all controls and indicators
- Setup instructions, login, and shutdown procedures
- Troubleshooting, diagnostics, and isolation for the identification and repair of faults
- List of user messages, errors and descriptions

Operations manuals required for the ngORCA system include the equipment, systems, and integrations provided below.

Equipment:

- Onboard Validator
- Onboard Driver Display Unit
- Wayside Validator
- Vending Machine
- Customer Service Terminal and associated peripherals

Equipment Software / Applications:

- Validator Operations
- Driver Display Unit Operations
- Vending Machine Operations
- Fare Inspection and Validation App Operations

Preventative Maintenance manuals are provided in instances where proactive care and management of an item of equipment can help improve its performance and/or overall useful life. While not inherent to each item of equipment associated with ngORCA, INIT will identify items where preventative or periodic maintenance guidance are warranted.

Corrective / Field Maintenance manuals will be specific to the item(s) of equipment installed or in operation at an Agency location. Such items of equipment will include the onboard and wayside validators and driver displays, vending machines, customer service terminals.

To ensure the Agencies are equipped with the necessary knowledge and reference material, each manual will include:

- Troubleshooting guide providing errors and screens for common failures
- Common fault descriptions and best practices
- Unit swap instructions

Where necessary the Corrective / Field Maintenance manuals will expand detail on some functions and features of the equipment described in the Operations Manuals. The point and purpose is such that the user is able to become increasingly familiar with the micro detail necessary to perform the functions in their role. Such detail may include block diagrams or a list of error codes typical to a sub-component or assembly.

Each manual will provide sufficient detail to ensure appropriate and accurate diagnosis down to the lowest level replaceable unit (LLRU). The LLRU is known by the Contract as a complete assembly provided by INIT or an OEM supplier for spare parts.

Corrective / Field Maintenance manuals required for ngORCA include the following system equipment and components:

- Onboard Validator Corrective / Field Maintenance
- Wayside Validator Corrective / Field Maintenance
- Onboard Driver Display Unit Corrective / Field Maintenance
- Vending Machine Corrective / Field Maintenance
- Customer Service Terminal Corrective / Field Maintenance

As a component of field service and maintenance functions, the Agencies may encounter locations or vehicles in which equipment must be decommissioned (e.g. bus being retired, Customer Service office closure, etc.) or newly installed (e.g. new service, location, etc.). For new installations, a Site Survey will be performed and then an Installation Procedure provided. Decommissioning instructions will be provided as part of general field maintenance activities.

Shop Repair and Overhaul manuals will address the processes and steps in which equipment is unable to be returned to service in the field and must be either repaired in the workshop or replaced if repair is not possible. For these manuals INIT will provide the information related to the workshop repairs performed and the procedure for which they occur. For items that are COTS provided (e.g. CST peripheral) and repair not possible, instructions or other information will be provided to support the replacement.

Parts manuals will be provided to outline the component parts and pieces of each unit of equipment, item numbers, manufacturer, and other similar information. The Parts manuals will

detail the unit of equipment and/or installation materials applied to, any Agency-specific information, location detail, etc.

Software and Programming manuals will be drafted to support a technician in performing the appropriate series of functions to return a unit of equipment to service or install a new one. This information includes all software and programming information required per unit of equipment. For example, onboard equipment would need to include information about the cable and e-prom as well as the validator in order to fully commission the validator or in the case of the CST, this may include software to be loaded, run commands, and testing of peripherals. Each manual will provide the needed catalog of instruction along with step by step guide for performing a stated task.

Software Source Code manuals will be provided in support of any non-proprietary related information. Additionally, the manuals will detail the items intended for Escrow as part of the source-code deposit required at Full System Acceptance.

API manuals will provide the suppliers that need to integrate with the the system using the APIs with the requisite information of the API specification, calls, data formats, system and security requirements. The API manuals will be written to support the following established APIs:

- Fare Payment
- Fare Inspection
- Central Payment Processing
- Transit Account Management
- System Management
- Fare Distribution
- Customer Account Management
- Onboard Integration

User and Field Maintenance Quick Reference Guides will be written to support the ability to perform a task or function central to a resource's job, role, or shift. Quick Reference Guides are not inherently limited in scope to any specific functional area nor specifically required for all functional areas. For example, a field technician may need a Quick Reference Guide for equipment swaps for each equipment type. Similarly, Quick Reference Guides may be required for each equipment type and unique to each Agency as their processes or procedures internally may require steps another Agency does not. Alternatively, there may be in depth functions associated with a System Administrator or Finance person where a Quick Reference Guide may be deemed insufficient as to be valuable.

OEM manuals we will be provided for items of equipment sourced from an alternate third party. For example, the card printer for the CST will be procured from a standard COTs provider and as such the user and maintenance information would be sourced from the manufacturer.

Back Office Manuals

The detailed operating instructions and procedures on the ngORCA System will be provided to the Agencies' System Administrators and IT personnel. These groups will be responsible for the operation and maintenance of the back office and its applications and system components.

All documentation provided will include functional and technical information relevant to the target audience ensuring the material is meaningful to the user. Each application program and its use will be explained along with step by step procedures detailing the configuration and parameter differences and the associated impact, if any, when they are changed or modified.

Administrator's Manual will be provided for the System Administrator or team(s) as applicable to the needs of the Region to inform on the system components, interfaces, suppliers, integrations, and other detail central to the system's overall design and implementation.

User's Manual will be provided to enable administrators and their teams to perform the various functions and configurations related to the central system. The following manuals will be provided for the back-office systems and configuration:

- Tariff Management
- Master Data Management
- Admin Tool
- Device Data Manager
- Parameter Management
- Online Crypto Manager
- Revenue Management
- Form Designer
- Asset Manager
- Card Inventory Management
- VASA Report Access and Management

Customer Relationship Management Application Operations Manual will be provided to enable the user to understand the form, function, and operation of the CRM. Detailed information on

user flows, data fields, functions, and operations will be provided as well as any information related to it's integration and support.

Asset Incident Management Application Operations Manual will detail the way in which assets are inventoried, monitored, and managed within the system. This includes all serialized assets such as a unit of equipment or piece of fare media. The manual will detail the way in which assets are defined, set up, and configured for monitoring and/or maintenance purposes including system alerts, alarms, errors, and so forth will be described along with the necessary troubleshooting and/or repair steps for recovery and reinstitution to typical operation. Furthermore, in the event a system restart or failure is required, the manuals will also provide sufficient information on the restart, reconfiguration, or other power-up tasks required. Additionally, the user will be instructed on the purposes and means for exporting data and log files, 'diagnostic data dumps', from the system. The documents to support maintenance of the back office are as follows:

- Software Maintenance
- Asset Management
- Incident Occurrence Notices
- Back Office Equipment and Systems Preventative Maintenance

System Manager Operations Manual is intended to detail the back-office infrastructure and network requirements of the system, including Agency-specific and central-system requirements. The System Manager Operations Manual will include information related to the architecture and application integrations of the system:

- Network Architecture
- Database Design and Architecture
- Disaster Recovery and Redundancy
- Failover and Data Load
- Customer Relationship Management Application
- Fare Inspection, Mobile Application
- Fare Validation, Mobile Application
- Customer Management, Mobile Application
- Web Portal Application

As more fully detailed system backup and redundancy and disaster recovery design, the process for backing up and cutting over to the Disaster Recovery System will require support and knowledge from all parties. The System Manager Operations Manual will however, provide the detailed procedures and step by step instructions for such occurrences. The cutover may take different forms depending on the root cause or scale of the occurrence.

Financial Management Application Operations Manual will detail the financial and accounting functions, processes and configuration. The manual will detail the Sage accounting interface integration, reporting, and daily, weekly, and/or monthly functions required to support the processing and settling of funds.

Field Media Management Application Operations Manual provides the way in which physical media is inventoried, moved between inventory locations, reconciled, ordered and other similar functions. Additionally, the manual will detail the different ways in which system equipment and interfaces will and can interact with all forms of media whether card present or not or physical media or not.

Software Source Code manuals will be provided in support of any non-proprietary related information. Additionally, the manuals will detail the items intended for Escrow as part of the source-code deposit required at Full System Acceptance.

OEM manuals are provided in support of the installed equipment, hardware, wiring, and applicable sub-assemblies, INIT will supply the Agencies with a parts and component catalog as well as a special tools catalog or list. Depending on the materials and sub or part document may be provided in compliment to the primary operations manual or cross-referenced (whichever is preferred by the Agencies).

In addition to the manuals noted above, INIT will also provide all available / complimentary documents which are in support of any OEM system component software, hardware, or integration. The format and structure will be determined as information or detail is available.

Support System Manuals

Once the system has been designed and implemented, support needs will be required at differing intervals based on the current state of the project. During the project implementation INIT will be responsible for carrying out and monitoring the management and maintenance of the system. Once the system is handed over to ROOT for the delivery of those management and maintenance functions, the Region will rely upon the knowledge gained from training and on-the-job support and the provision of documentation from INIT.

Operations and Maintenance Manual will detail the roles and responsibilities and related procedures between INIT and the Agencies in a manner so that it is clear the scope of the work

that is required of INIT and to which point there is hand-over or coordination with the Region. INIT will detail the INIT specific processes that are needed to be followed and to the extent practical denote any related Agency processes that may apply. The document will include the steps as needed for the duration of the maintenance period and be updated in the event of changes to the system or supporting infrastructure.

OEM Manuals will be used as supplied in the previous manual iterations in support of system equipment and components as described. Where applicable, OEM manuals will be replaced in the event of newly supported information or version changes.

Website Manuals

The website design is such that it is intended to serve multiple audiences in the Region including both end users, institutions, and Agency administrators. The complexity and detailed functional need requires a user manual be provided to cover each area.

Customer Website Design and Administration Manual will be provided to enable a detailed understanding of the form, function, and uses of the Customer Website. Information will be provided to ensure clarity of experience and feature capabilities based on the user; whether an end user as a single cardholder or Institution, Institutional administrator, Agency Institutional Program Administrator, ngORCA System Administrator, or Marketing and PR personnel.

Agency Mobile App Manuals

There will be two mobile Apps developed for ngORCA which provide two core support functions: Fare Inspection and Fare Validation.

Mobile Fare Inspection Application Design and Administration Manual will detail the design and function of the Inspection App. Detailed instructions on features and user stories will guide users through the purpose and intention of the app for inspection of media. App accessibility and device compatibility details will also be included.

Mobile Fare Validation Application Design and Administration Manual will provide the information and detail of the Validation (fare payment) App so that users understand the distinct purpose and different of user flows and needs between the Agency apps. App accessibility and device compatibility details will also be included.

Customer Mobile App Manual

The customer app will be similar in design to that of the customer website and as such serves a broad and unique audience while also enabling additional user features such as fare payment via NFC.

Customer Mobile Application Design and Administration Manual will provide the user with a detailed understanding of the form, function, and uses of the app as well as any inherent limitations or system requirements.

2.7.2.7 Software Escrow Deposit

INIT will deposit INIT Software with a source code agent. During the one-year period there is no charge for SoundTransit. Deposit of 3rd party software such as Microsoft, Sage, Salesforce etc. is not included. Charges for an annual deposit after warranty are included in the operational costs. Our preferred source code agent is capable of doing Level 2 deposits if needed. Included in our pricing is Level 1 deposit which INIT has done for other projects. Level 2 deposit would require an upcharge. Please refer to the commented section D "Source Code Escrow" of the RFP document "Exhibit A Proposed Agreement" for additional details.

2.8 INIT's Proven Transition Methodology and Approach

After a detailed review of the ngORCA Preliminary Transition Plan, INIT is confident that we will be able to conform to the Agencies desire to transition from the Legacy ORCA system to the ngORCA system utilizing a phased "back office parallel" approach. This approach will result in minimal customer impact with manageable risk while preserving operating revenue. INIT has the experience and track record of successfully accomplishing the transition of multiple brownfield smartcard projects around the globe.

The latest transition was performed from a card based solution to an account based solution in Turku, Finland. The transitioning was successfully completed on time. Although the transitioning in Turku followed the 'Field Devices First' approach, INIT gained a lot of valuable experience with the transition process from a card-based system to an account-based system; specifically, the reconciling of the data between two parallel systems and a product by product migration. Not to be overlooked as well is the efforts and communication undertaken in vendor-to-vendor engagement and working as a team to prioritize business need of the customer.

During the transition in Turku, in order to initiate the 'Field Devices First' model, INIT first implemented the existing card-based card application so that the transactions were directed to the existing back-office system. Additionally, the transactions were directed to the MOBILEvario back-office so INIT could also calculate the new status for the card account. As the transactions were sent to both systems, the values in MOBILEvario and in the old back-office were compared against each other.

Once able to validate that the fare logic was identical in both systems, INIT was able to begin moving products from the old system to the new one. With a focus on limiting disruption in the process, this effort was done slowly and methodically; product by product, moving the simplest

products first (Agency annual passes) and the most complex last (stored value accounts). Following successful transition of the back-office, the existing system (old back-office) was decommissioned and INIT was then the sole system provider.

Taking this approach allowed us to control the transition and execute in a methodical manner, one step at a time; in so doing, the transition was both smooth and low impact and risk to the Agency ridership. That said, this approach also posed several challenges. In general, this was quite a complex transition but moreover, it required an enormous amount of cooperation and communication between INIT and the previous vendor. In this particular case, the previous vendor was incentivized by independent business opportunities which helped to foster their cooperative nature for this transition.

Additionally, and of particular relevance to this Project, INIT gained invaluable experience transitioning from an existing VIX/ERG card-based system to a new INIT designed smart card fare collection system at the Regional Transit Authority, Environment Canterbury, located in Christchurch, New Zealand.

During this transition we obtained a lot of understanding and experience in how the Vix system and card application are designed and implemented. However, unlike our efforts in Turku, this transition only required our engagement with the Agency as they were able to obtain the information and details we needed for our role in the transition (e.g. card keys). Unfortunately, the card keys were not easy for the Agency to obtain from the previous vendor; however, specific to ngORCA, since the DARE system will act as an intermediary between the legacy and next generation system, we anticipate minimal – if any – engagement between INIT and the incumbent vendor would be required. That said, INIT as the System Integrator means we are a partner to the Agencies and all vendors and will engage and support the tasks needed to ensure a transparent and successful interaction and final transition.

The specific and key detail of the transition will be worked out in earnest with the Agencies during the design review. As part of these discussions we will identify, sort out and categorize each step required within the different phases. This will include a thorough understanding of the dependencies of the various silos of the system (e.g. back office implementation, equipment procurement and testing, etc.), their points of integration, and a detailed schedule including critical path for each. With the planning and assignment of the tasks required, the other key factors will be INIT's continual progress reporting (proposed monthly) and the cooperative risk mitigation planning between the parties are equally imperative in the overall execution.

With a combination of our experiences gained transitioning other projects and the Agencies detailed transition planning that has been undertaken to date, we believe the essential

information and integration points are clear and that the capability and knowledge present is suitable to successfully carryout this transition for ORCA.

2.8.1 Minimal Customer Service and Project Impact Transition

Without question, the brownfield environment of the system and the required transition poses several layers of complexity and risk; planning, communication, and solid execution are tantamount in importance. The legacy ORCA system has been successfully operating for several years and ORCA riders have come to expect a predictable and unchanging user experience; it is imperative that the transition not disrupt that ecosystem. With that, the transition and all activities thereafter will be carefully coordinated and clearly communicated between all parties. Additionally, INIT strongly suggests the Agencies draft and implement a creative promotional public awareness campaign. In so doing, we can filter in those activities within the Transition Plan so that the Project Team is clear when communications to the public are occurring.

A close collaboration between all partners involved is essential for a smooth transition. This includes the next generation ORCA Project Team, all agency personnel connected to the transition such as the marketing, finance, IT and maintenance departments, as well as the legacy ORCA vendor, the DARE vendor and all third party ngORCA vendors, e.g. the Retail Network Provider.

Customer Impact Considerations

One of the major factors for general public acceptance of the ngORCA system is to ensure that the first impression of the system is a positive one. This is why INIT sees the transition as the most critical phase of the project and will commit all of the necessary resources to complete this phase as smooth as is possible. INIT's primary goal during the transition will be to create a seamless transition in order to minimize the impact on the customer and to preserve operating revenue.

Taking the back-office parallel approach limits the customer impact up to the point when the INIT system becomes the system of record. Once this action has occurred there are two key impact points in particular that should be considered for transit ORCA users. The first is ensuring the accuracy of the data and transaction processing (to the extent possible in consideration of the inherent limitations stated below) while the second is around the physical installations of the ngORCA equipment and the rider's user experience. Outside of those two key factors there are however, several ancillary elements to consider, discuss, and mutually agree on mitigation strategies where appropriate. For example, operator training and timing prior to the point where INIT is the system of record so that internal clarity of what is occurring is clear and any discussions with users is consistent; marketing and promotion communications to the customers

letting them know of the pending changes, what to expect and so on; user understanding of the data and account management capabilities and limitations during the transition; and other similar factors.

With the two (2) stated key factors above, consideration should be made as follows. For the first, prior to INIT becoming the system of record, we will have undertaken the necessary steps, similar to our work in Turku, to reconcile the data between the parallel back-office systems. Only when we have been able to successfully validate and then demonstrate that the INIT system is routinely and consistently processing data accurately will we then move forward with our request to switch to INIT as the system of record. The timing of the switch can be coordinated between INIT and the Agencies to impact the lowest conceivable subset of users (e.g. not during peak commuting hours). Once the switch has occurred INIT will continue to monitor performance and accuracy of the data. The efforts will then progress in the field to begin the transition of the system equipment.

System transition for the new equipment is the next key point or driver in consideration of customer impact or change of ORCA rider experience. We expect that levels of opinion about the changes occurring will generate varying amounts of positive and negative feedback from riders irrespective of the physical transition or actual impact to the rider; change is change and not inherently palatable. That point aside, to ensure the elements we can control are done so effectively and efficiently INIT suggests deployment of a series of strategies and stages. This includes both the process, timing, and methods for installation but also, signage and communications.

As an example, INIT will use multiple experienced installation crews to perform parallel installations at multiple yards so that the duration of the device replacement phase is minimized in order to minimize the potential customer confusion of having different validators installed in the field during Phase 5 of the proposed transition plan. After reviewing the currently installed legacy ORCA validators on-board the vehicles and on the platform, we anticipate the installation effort should be minimal. For example, we can use different mounting brackets to install the INIT validator, consequently the current stanchions used in most busses to install the legacy ORCA validators can most likely be re-used. If there is not a need to pull cabling and install new mounting brackets on each vehicle, we expect that the replacement of the legacy validators will be a quick and efficient process. This is true as well for the Driver Display Units on each vehicle. For the wayside equipment INIT hopes to repurpose all wayside validation cabling and vending machine power source and connections. The extent to which this is practicable will be determined in finality as part of the design reviews and site surveys undertaken.

Second to the repurposing of existing installation is the timing and scheduling of the installation efforts. **As both King County Metro (KCM) and Community Transit (CT) will be undertaking their**

own installation efforts, INIT will focus first on the Site Surveys and Installation Guides for those two (2) Agencies. All remaining Agency installations will be coordinated based on both vehicle availability as well as impact to operations. For example, INIT may run shifts during the night for one Agency and on the weekend for another. Either approach depends on the operation by the Agency but INIT will work around these factors as required or needed.

For the Vending Machines, there are a few different options that can be undertaken during transition, which will be detailed further in the section below. Irrespective of the direction taken, INIT will work with the Agencies on station prioritization (either high use or low use as the priority) as well as preferred time slots. Generally speaking, as with the vehicle installation noted above, identifying time slots that are outside the high commute hours is key.

The final equipment installation element to consider is a combination of customer and Agency impact, the Customer Service Terminal (CST). The installation can take place outside of standard operating hours (which functionally limits impact to a customer); however, the Agency impact must be considered in parallel. With that we may need to factor the installation and transition efforts here around both Agency Customer Service training as well as the integration or pilot testing phases.

As the above noted installations occur INIT hopes to integrate the Agency promotional discussions and signage in support of the transition are able to be mixed in. These ideas and discussions can be filtered during the design review planning but may also want to be considered more broadly in the UI/UX strategies undertaken with Anthro-Tech and their work with the Web Portal and Customer Mobile App.

Agency Impact Considerations

While ensuring a seamless user experience for ORCA riders is a primary focus, realizing and mitigating the broad sweeping impact to the Agencies is no less important. To understand the full extent of the concern and challenges to be faced, INIT will meet with each Agency individually as well as the ngORCA Agency Project Team to ensure a detailed impact analysis is performed and that INIT has a solid understanding of the impact and priorities of key Agency stakeholders. While the Transition Plan will be agreed by the Region, it is important that INIT has and understands the nuances and impact to each Agency individually.

With the understanding that detailed planning will occur during the design review, the following is INIT's high level summation of Agency-impact by each Agency based on the information provided:

1. Community Transit (CT)
 - a. Vehicle installation including INIT DDU configuration

- b. Wayside installation (Swift)
 - c. Customer Service Terminal installation and configuration
 - d. Training; prioritization of Customer Service, Operator, Fare Inspection, and Maintenance
- 2. Everett Transit (ET)
 - a. Vehicle installation including DDU integration
 - b. Customer Service Terminal installation and configuration
 - c. Training; prioritization of Customer Service, Operator, Fare Inspection, and Maintenance
- 3. King County Metro (KCM)
 - a. Vehicle installation including INIT DDU configuration
 - b. Wayside installation (RapidRide)
 - c. Customer Service Terminal installation and configuration
 - d. Training; prioritization of Customer Service, Operator, Fare Inspection, System Administration, and Maintenance
- 4. Kitsap Transit (KT)
 - a. Vehicle installation including DDU configuration
 - b. Customer Service Terminal installation and configuration
 - c. Training; prioritization of Customer Service, Operator, and Maintenance
- 5. Pierce Transit (PT)
 - a. Vehicle installation including DDU configuration
 - b. Customer Service Terminal installation and configuration
 - c. Training; prioritization of Customer Service, Operator, Fare Inspection, and Maintenance
- 6. Sound Transit (ST)
 - a. Wayside installation (Rail Validators and Vending Machines)
 - b. Customer Service Terminal installation and configuration
 - c. Training; prioritization of Customer Service, Operator, Fare Inspection, System Administration, Finance, and Maintenance
- 7. Washington State Ferries (WSF)

- a. Wave2Go integration and configuration
- b. Portable validation configuration
- c. **Customer Service Terminal installation and configuration**
- d. Training; prioritization of Customer Service, Operator, and Maintenance

As noted previously, obtaining the Agency-specific detail will be essential in the design review so that we have a clear understanding of each Agency's need, scope, as well as their dependent factors and combine that with the Region and the stated regional priorities. Having a collective, common understanding ensures our Transition Plan meets the individual and collective needs while taking the necessary steps to understand the different user groups or customer base(s).

Similarly, common elements such as the back-office and test facility installation and configuration are key Agency impact points. The Agencies will need to have a common understanding of the back-office architecture and how the networking configuration occurs individually and how it is differentiated and transitioned from the previous system. Agency IT or administration support staff in these areas will be key stakeholders and essential to be privy to all discussions related to the design and implementation of these systems.

Cost Impact Considerations

The majority of costs associated with the INIT's scope of work in the Transition Plan will be absorbed as part of the overall ngORCA project. However, specific costs related to CT and KCM's efforts to undertake their installations independently are not factored into this scope of work. Generally speaking, INIT suggests that CT and KCM identify a cost per vehicle or location for an installation and then to factor that against the number of resources available, resources required, and schedule based on the Region's agreement(s).

Collectively there are costs that should be factored such as storage, inventory administration, portability or transportation regardless of the scope of installation. With that in mind, the Region could opt to share these costs or, the could be borne independently by installation owner (e.g. CT, KCM, and/or INIT). INIT will factor these costs as part of our overall installation effort(s) provided in the SOW but is open to collaboration efforts with the Region if appropriate or determined during later discussions.

While not anticipated there are cost considerations that should be discussed, as well as mitigation strategies that will need to be established should certain cost-related risks be realized. For example:

Installation Materials (Vehicle)

- Issues are encountered with wiring or connection and require new installation materials and cabling including a full decommissioning of a vehicle
- Planned validator installation location encounters an issue with access for maintenance
- Validator installation location interferes with ADA compliance
- Issues are encountered with new INIT provisioned DDU and Validator integration
- Data communications are intermittent beyond the range of those anticipated

Installation Materials (Wayside Validation / Masts)

- Mast height and/or location require additional length for cabling
- Validator installation and connectivity are not achieved as planned
- Mast height or location does not meet ADA requirements
- Mast installation is varied and Region expects ORCA common user experience (Agency agnostic)
- Concrete work is required as a result of decommissioning or remedy to issues noted previously
- Concrete or other 'clean-up' work is required as a result of debris or dropped material damaging surrounding walls or flooring
- Refurbish or recycling of equipment and materials decommissioned
- Schematic or wiring inconsistencies which render a validator non-functional
- Common / agreed methods for rendering a validator out of service occurs collectively as a Region vs. individual Agency (risk of varied user experience / expectation)

Installation Materials (Vending Machines)

- Connectivity and commissioning do not occur as planned; rendering a device out of service
- Side by side installation inconsistencies; impact to ADA compliance
- Side by side installations and their variations; impact to operation and UX/UI strategies and goals noted for ORCA
- Concrete work is required as a result of decommissioning or remedy to issues noted previously
- Concrete or other 'clean-up' work is required as a result of debris or dropped material damaging surrounding walls or flooring

- Refurbish or recycling of equipment and materials decommissioned
- Schematic or wiring inconsistencies which render a validator non-functional
- Common / agreed methods for rendering a validator out of service occurs collectively as a Region vs. individual Agency (risk of varied user experience / expectation)

Fare Inspection

- Issues with loading or managing the app are difficult or unclear to users; ineffective training or new personnel
- Usability of app is not as expected
- Compatibility between app and device not realized
- Connection issues limit app performance
- Inspectors not adequately trained on function and transition variances

Procurement

- Equipment does not adhere to the design and test schedules as required
- Equipment is not build in the required timeline
- Equipment is not configured and delivered in the required timeline
- Issues with testing of equipment results in a return to manufacturer
- Issues with installation occur such that a systemic issue is identified and requires resolution
- Additional materials for repair, replacement, or similar are not able to be provided in a timeline to meet the stated needs

Project Schedule Considerations

As noted above, there are several factors which could impact the progress of the transition as planned. While we will track these risks individually, the overall project schedule considerations will focus primarily on milestones or dependency completion points with regard to the Transition Plan. To do this we need to have a clear critical path schedule that deals or demonstrates directly the impact of dependencies that fail to meet their stated requirement. While we will address the risk at a micro level we have to in parallel address these impacts on a macro level, identifying specific, case-by-case strategies, so that the Steering Committee can govern the broader or larger decisions based on an appropriate and realistic impact assessment.

Risk Considerations

Risk mitigation more broadly will be managing the known and unknown elements of the project. Specific to the Transition Plan risk mitigation will be the management and mitigation of the impact points as noted above - as well as those that remain unknown. For example, INIT will rely on Agency report for risk items specific to the DARE system or similarly to those encountered when dealing with the current vendor. Additionally, unknown risks could also be related to non-SOW items (e.g. Retail Network WSF procurement, etc.) but planned as part of the final roll-out – such that it affects the overall system delivery.

To be clear, each impact stated in the previous sections are based solely on the assumption that the parallel back-office approach is the one undertaken. In light of that, the risks defined so far, among others, will be added to the risk matrix. With that, management and mitigation strategies will be as defined in the project management sections noted above and specific to Risk Management.

Irrespective of the known or perceived risks and the mitigation planning that is made part of that, those efforts in no way diminish the importance or realizing, understanding, planning or mitigating potential risks that are unclear or unable to materialize in this early stage. The extension of the unknowns, regardless of root source, INIT will ensure the identification, tracking, assignment, and planning around each is transparent and communicated to the appropriate stakeholders.

2.8.2 ngORCA's Innovative Transition Plan

INIT does not see any major issues in realizing the Back Office Parallel Approach that is presented in the Preliminary Transition Plan. That said, INIT does have a few recommendations and preferred measures in an effort to help facilitate and support the transition being as smooth as possible; these are detailed in the sections below.

Card Keys and Back-Office

There are some specific details that will require further discussion during the System Design Phase. For example, the initial database exchange (from DARE) to bring the INIT system online and the synchronization thereafter that would be required; what are the expected steps in the event that issues arise and next, if said issues begin to impact the overall project schedule.

That aside, INIT is very familiar with the chip type that is currently used within the legacy ORCA cards and does not see any issues reading and authenticating those cards with the keys that will be made available. To use the built-in authentication method, the authentication key of the cards needs to be injected into the ngORCA validators. This injection can happen with INITs secure Online Crypto Management in a secure way without the use of SAM modules and therefore without the need to physically touch the devices. In addition, we think that the ORCA

card number that is available on the legacy ORCA cards can be used as a unique identifier to setup and access the account in the ngORCA system connected to the card. But it may be interesting to explore in the system design phase if there are other unique identifiers available on the card.

Furthermore, it needs to be discussed if it is feasible to write limited amount of data to the legacy cards when a tap occurs. This would be recommended as a risk mitigation strategy for the fare inspection risk during the transition phase. For fare inspection reasons, we typically write the current tap time on the card whenever the card is tapped on a validator. If all validators (the legacy ORCA and the ngORCA validators) would write the current tap time to the card, the high-level inspection logic for the ngORCA inspection devices could be as follows:

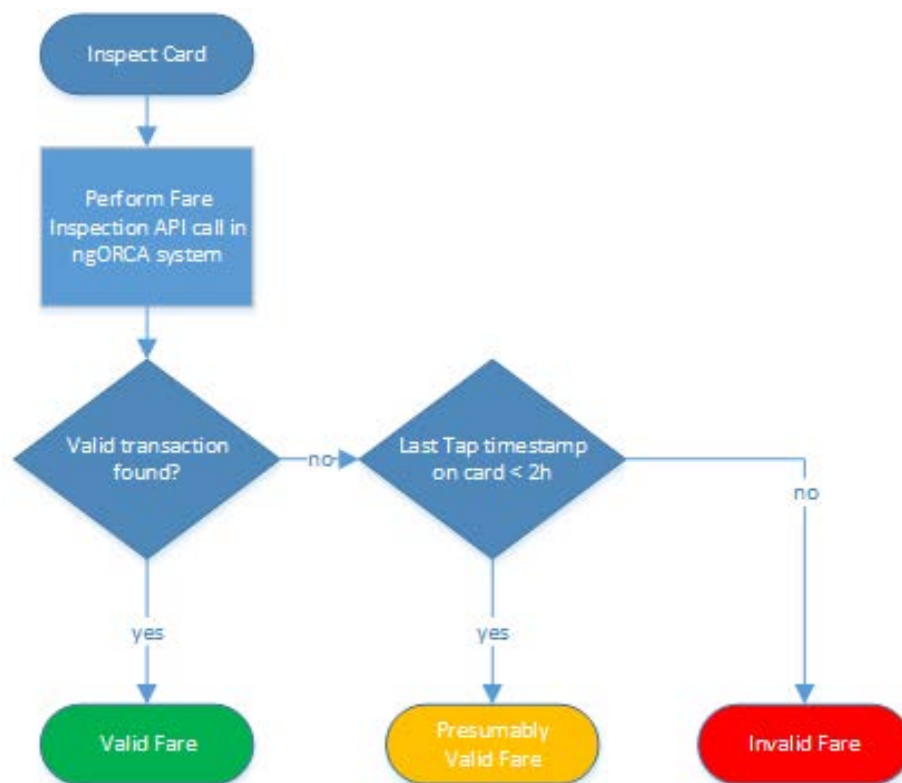


Figure 2-10: High level inspection flow if writing to legacy card is possible

Being able to write some data to the card would help in the case that the card was tapped on a legacy ORCA validator, but the transaction did not make it in the ngORCA system yet. Since the inspection device would be able to determine that there was a recent tap, the inspector device could make the call that the inspection is presumably valid, even if there is no recorded transaction in the ngORCA background system.

Other points that will require further clarification during the system design phase are the exact interfaces between the ngORCA system and the legacy system. INIT's understanding is that the

DARe will be used to access all transactional information needed from the legacy system, but the hotlist would be transferred using a direct data flow between the legacy system and the ngORCA system.

INIT would prefer that this direct data flow of the hotlist is handled with standard web-based APIs. This would allow the legacy ORCA system to pull the hotlist information from the ngORCA system using standard APIs. Following the proposed Open Architecture concept, the INIT background system already has the means to provide hotlists to 3rd parties using standard APIs, therefore no extra transition-only software would need to be developed for the hotlist exchange.

However, INIT fully supports a file-based upload of the hotlist if that is the Agencies preference. In a file-based upload approach INIT would provide a file with all hotlisted cards on a regular basis so that the legacy ORCA provider can update their hotlist.

The transition-only software needed on the INIT device side would be minimal too. The only difference in the validator/VM software would be a change in the GUI so that certain functionality, e.g. showing the remaining balance on the validator, will be disabled during the transition phase. INITs device software is built in a way that GUI changes are very easy to implement and deploy since the GUI is decoupled from the core validator and reader software.

Field Installation

Taking the parallel back-office approach, it's important to note that INIT's efforts here will be to prioritize the Agencies' requirements for field installation in the Transition Plan as well as those that govern a common user experience.

It has been noted in the Agency's Transition Plan that wayside installations are to be prioritized first. As noted above, INIT's expectation is to run our teams in parallel to reduce the overall impact and meet the schedule needs defined.

It is generally understood that the CST will continue to function up to and as part of the last transition installation elements due to its robust nature and capacity to speak to legacy cards.

Regarding the VMs, in the Agency Transition Plan the current thinking is that INIT would replace only one (1) with the INIT VM and it would then operate side-by-side with the legacy VM. In consideration of the user experience and potential confusion, the fact that the legacy VM will no longer be able to enforce the floor limit for e-purse, as well as capability within the INIT system, INIT would like to propose instead that the VMs be installed two (2) at a time so that a user only encounters either an INIT VM or legacy VM. To clarify, the capability of the INIT VM can be designed to include functionality to handle legacy cards. Provided INIT has the card keys the VM

operation, in being account based, will only need to read the card number and not concern itself with any encoding.

Fare Inspection

As noted above, there are some considerations that INIT would like to propose in order to better support / limit impact to the fare inspection process. The inspection devices will be somewhat constrained due to the limited ability to read card data if a tap is on a legacy device, until that tap has reached the back office. Should we be able to get the incumbent vendor to provide the needed code changes, we hope some data can be written to the card as described in the previous section.

2.8.3 Pilot Testing in a Brownfield Environment with Minimal Customer Impact

To facilitate the planning and communication of the Pilot Test, INIT will collaborate with the Agencies to design and draft the Pilot Test Plan. Due to the larger potential impact to existing users, this plan will be one of the more crucial test documents due to the amount of coordination and communication required as well as non-technical considerations. The plan will include the different steps and phases of the work itself, prerequisites, schedules and locations, communication strategies, risk-mitigation planning, promotional activities, and likely a series of go/no-go decisions points.

In a greenfield project, users might see things that are new during their commutes or rides, things such as new equipment or marketing and advertising schemes; they may hear information about 'something' coming. The important distinction is that these "things" are about something occurring in the future. Aside from a user wondering how that might change their current experience, the overall impact to that ride or commute 'of the day' is negligible.

Brownfield is different; we will need to isolate the test scenarios to limit extraneous customer impact or engagement not made or intended as part of the plan. And, it's important that there is a communication strategy for ORCA riders and more critically, that the Pilot Test (and eventual Transition) meet the promises of those campaigns.

Getting it right is key and INIT will work with the Agencies on a thorough and thought out plan as well as partnered management and oversight during execution.

Prerequisites

Prior to the start of the Pilot Test, the INIT back office must be up, fully operational, and capable of demonstrating the processing and management system data. Additionally, INIT will have to have passed the FIT test phase which requires ngORCA system equipment to be at least partially installed. As the Pilot Test forms part of the overall Transition Plan, INIT will coordinate and plan

with the Agencies the timing of the different installation activities meant to occur in production in parallel to the Pilot.

Pilot Test

A best-case scenario would be the ability to perform a dry-run of the Pilot Test, in test where the Agency test facility built for the ngORCA project would also have a complete legacy ORCA test environment. With that, the test facility would include the ngORCA equipment and system components side-by-side to the legacy equipment, including legacy Validators and VMs etc. Having both, the ngORCA system including a test instance of the DARE, and the legacy ORCA system available in a test environment would help tremendously in testing the transition approach in a controlled environment. However, this can only be achieved in collaboration with the legacy ORCA system provider.

The real impact on the customers begins when the first device is replaced. From this moment on, the balance written to the card is no longer a guarantee for the balance used to determine if there is valid fare or not, since all balance updates in the ngORCA system may be 24h or even 48h delayed. Minimizing the time starting from the first bus or platform being replaced until the whole fleet is replaced is critical. All testing and preparation that can be done before the first device is replaced should be done. This includes prototyping of the validators. For the platform devices the prototyping can take place on stations with multiple validators, where replacing one validator doesn't slow down the boarding process. The same can be done, if desired, for the vending machines. As part of the Pilot Test execution, these prototype devices can go through a series of testing by select users over a specified timeframe. It will be important to identify wayside locations for each applicable Agency while still constraining the test parameters.

On the bus side the problem is more challenging. There are different approaches that could be taken to complete prototyping without fully replacing the legacy validator, for example having two validators installed in parallel for some prototype vehicles (which will create issues with the CAD/AVL interface(s)) or using vehicles for prototyping that are out of service for a longer period of time anyway e.g. due to an engine rebuilt. Another option would be to temporarily install the ngORCA validators for prototyping and Pilot Test and replace them with the legacy validators after a successful installation and system test. During this temporary installation the scope of the Pilot Test could be executed in a variety of ways and may need to vary by Agency and equipment type.

In addition to a full test system described above, it would be ideal to have a full set of legacy hardware components (validators, VMs) available in a controlled environment pointing to the production system. This would allow proper pilot testing of the production system in the laboratory. For those Pilot tests, a closely controlled set of legacy cards would be used. With

that, due to new systems such as the Web Portal and mobile apps, testing of these systems can be done similar to what was provided for FIT only this test is in conjunction with any of the prototyping or test steps noted above. Once the scripted tests of the Pilot have been performed and approved by the Agencies, the full roll-out can commence.

2.8.4 Accommodating the Early System Expansions

To mitigate project risk and provide the most value to Sound Transit, INIT proposes taking a modified transition approach for the LRV Stations and BRT Platforms that open prior to completion of Pilot Testing. We propose integrating INIT supplied Vending Machines (VM) with the VIX back office at these platforms. Because the system expansions occur prior to Pilot Testing, there is no way to outfit the INIT equipment and operate on the INIT back-office.

During this transition phase, the INIT VMs will operate the same as the existing Scheidt & Bachmann (S&B) VMs. They will add value or products to existing card-based media, as well as, dispense new card-based media. The INIT VMs will continue to write to the card, i.e. we will not migrate to an account-based system, and the VIX system will remain the “system of record.” The interface between systems will be determined during design; either back-office to back-office through DARE or through the existing interface to the S&B VMs. It is anticipated to be a one-way interface wherein INIT will send the transactions records to VIX for reconciliation.

INIT still intends to utilize the transition methodology as described in earlier sections for the system cutover. This interim transition phase is only for deployment of VMs to meet the timeline of system expansions that occur before the ngORCA system is available. The following expansions occur prior to system Pilot Testing:

- Northgate Link Extension – December 1, 2020
- Tacoma Link Extension – July 1, 2021
- BRT Stations I – July 1, 2021

INIT intends to deploy the full INIT system at the next two system expansions as part of the Pilot Testing phase currently scheduled to start in May of 2021 and complete in August of 2021.

- BRT Stations II and Fleet Expansion I – January 1, 2022
- East Link Extension – January 1, 2022

This will ensure testing is completed and the expansions are ready for revenue service on the opening dates.

By performing this additional integration and modifying the migration, we greatly reduce the project risk. Additionally, Sound Transit will avoid additional investments in Scheidt & Bachmann equipment, which will be decommissioned a year or two later.

2.8.4.1 Alternative Concept

INIT could also deploy validators at these early expansion locations. However, that would require INIT to program the entire fare logic for the validators, e.g. the check-in check-out procedure on light rail.

This additional development and integration adds more time, cost and risk to the project. This alternative solution is only suggested if Sound Transit is not able to procure, move or refurbish existing validators. The financial cost and the impact to the schedule for this alternative is not reflected in our proposal.

2.8.4.2 Requirements of Sound Transit

Sound Transit (through VIX) provides access to the card keys and documentation for the card application at project kick-off.

Sound Transit will supply VIX platform validators by purchasing new, using spares or relocating existing units.

Changes to the fare products will have to be manually updated in the INIT system. There is no intention of developing an interface with VIX to import the fare structure. We recommend freezing the fare structure, if possible, during this and the main ngORCA cutover.

Streamline the design process for these interim devices. For example, the screen flows will not go through a rigorous UI/UX design process. Keep in mind, the software will be updated during the ngORCA migration/launch.

2.8.4.3 Impact

The interface development will be part of Build Package 1 as described in the project schedule so this will not extend the schedule. The cost of the interface development (the VMs are already included) has been added as a distinct line item in our price sheet.

2.8.5 Review of ngORCA's Transition Plan

After reviewing the ngORCA Preliminary Transition Plan (PTP), INIT is confident that we can conform to the Agencies desire to transition from the Legacy ORCA system to the ngORCA system utilizing a phased "back office parallel" approach. Each of the nine phases described in the PTP are logical and clear and we have analyzed each and made constructive suggestions.

Some of our feedback is simply adding an Entry or Exit criteria. For other Phases we recommend splitting the phase into several discrete sub-phases. The rationale is to isolate work packages that are hard dependencies and are being delivered by another team. These then become entry criteria for work packages in a subsequent phase

All of these are suggestions and will be fully discussed as the actual Transition Plan is developed in the planning phase of the project.

2.8.5.1 Organization and Conventions

This document is organized into six major discussion areas:

- Detailed review of the Preliminary Transition Plan from the RFP annotated with INIT's thoughts about how each Phase might be elaborated further
- A more detailed discussion about how the pilot testing phase would be conducted in an active "brownfield" environment
- Responses and clarifications to questions posed during the review process that may not be addressed elsewhere in the plan
- A summary on INIT's thinking about how to accommodate expansion of the system that will likely occur before ngORCA is ready
- Some thoughts/suggestions about how to use some capabilities in the Azure platform to accelerate the DARE Phase 2 development cycle
- Recent Transition efforts
- General statements about transition priorities.

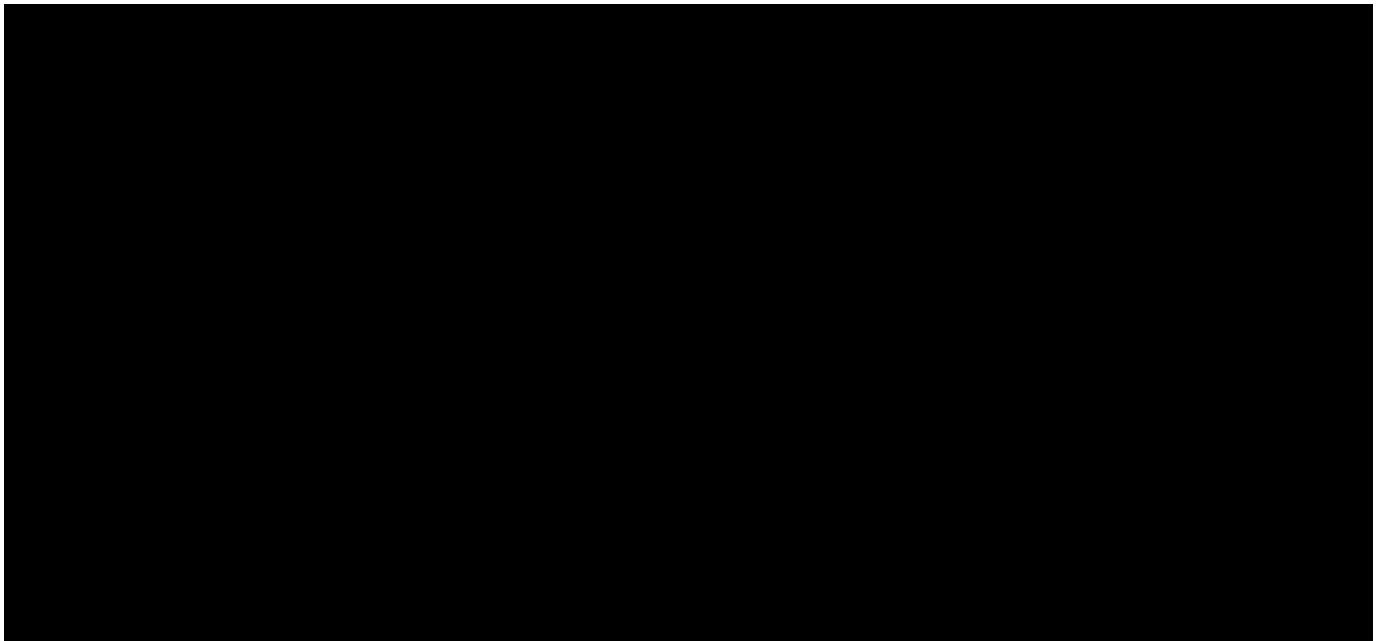
Within the section below, INIT has copied portions of the Preliminary Transition Plan (PTP) to provide context for the reader. To differentiate language from the PTP from INIT's own statements, PTP language will be formatted in *italics and a slightly smaller (10pt) font size*

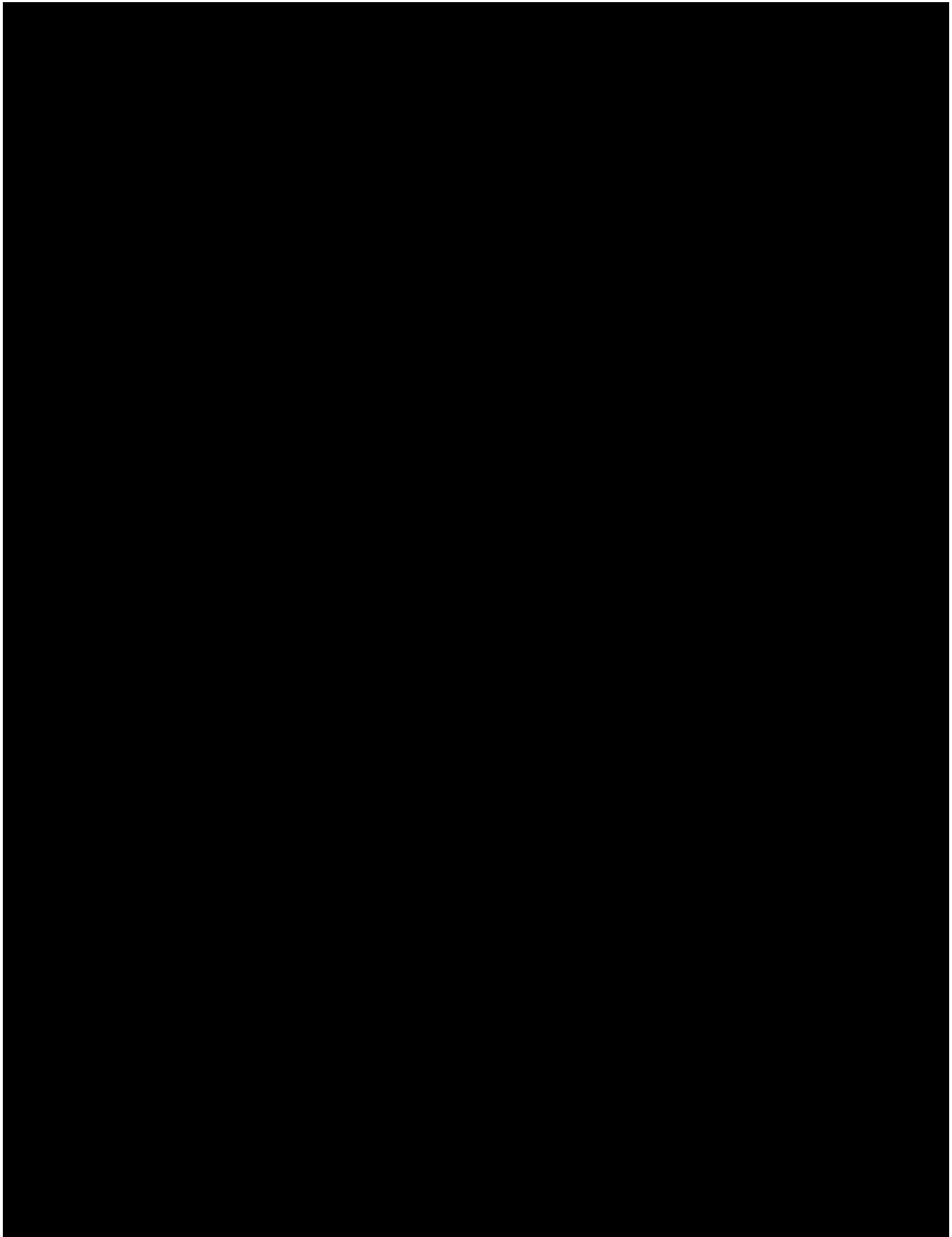
2.8.5.2 Assumptions

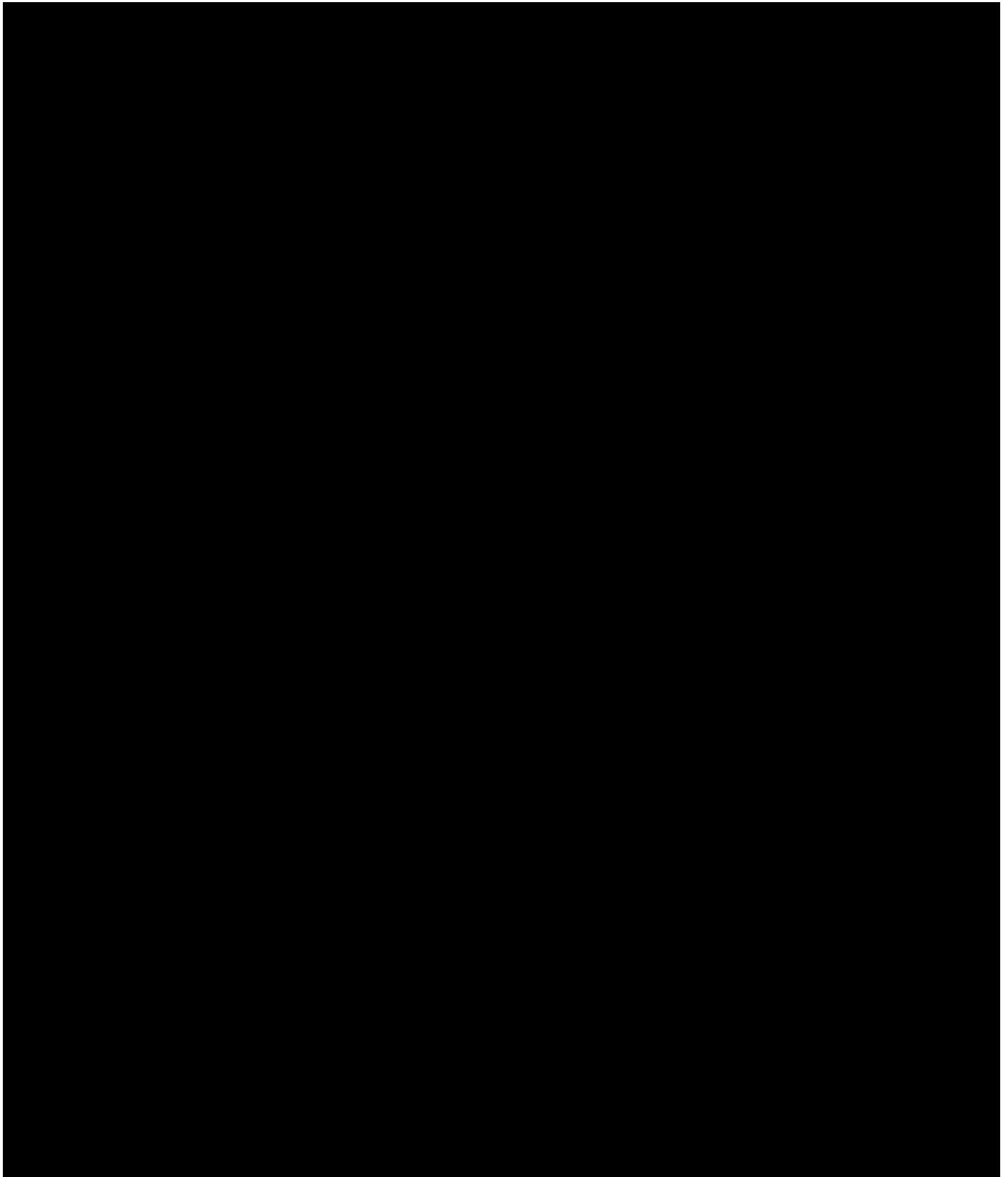
The following assumptions are being made in this version of the INIT transition plan. Most represent technical details that have not been shared with INIT yet but will be provided once a contract has been signed.

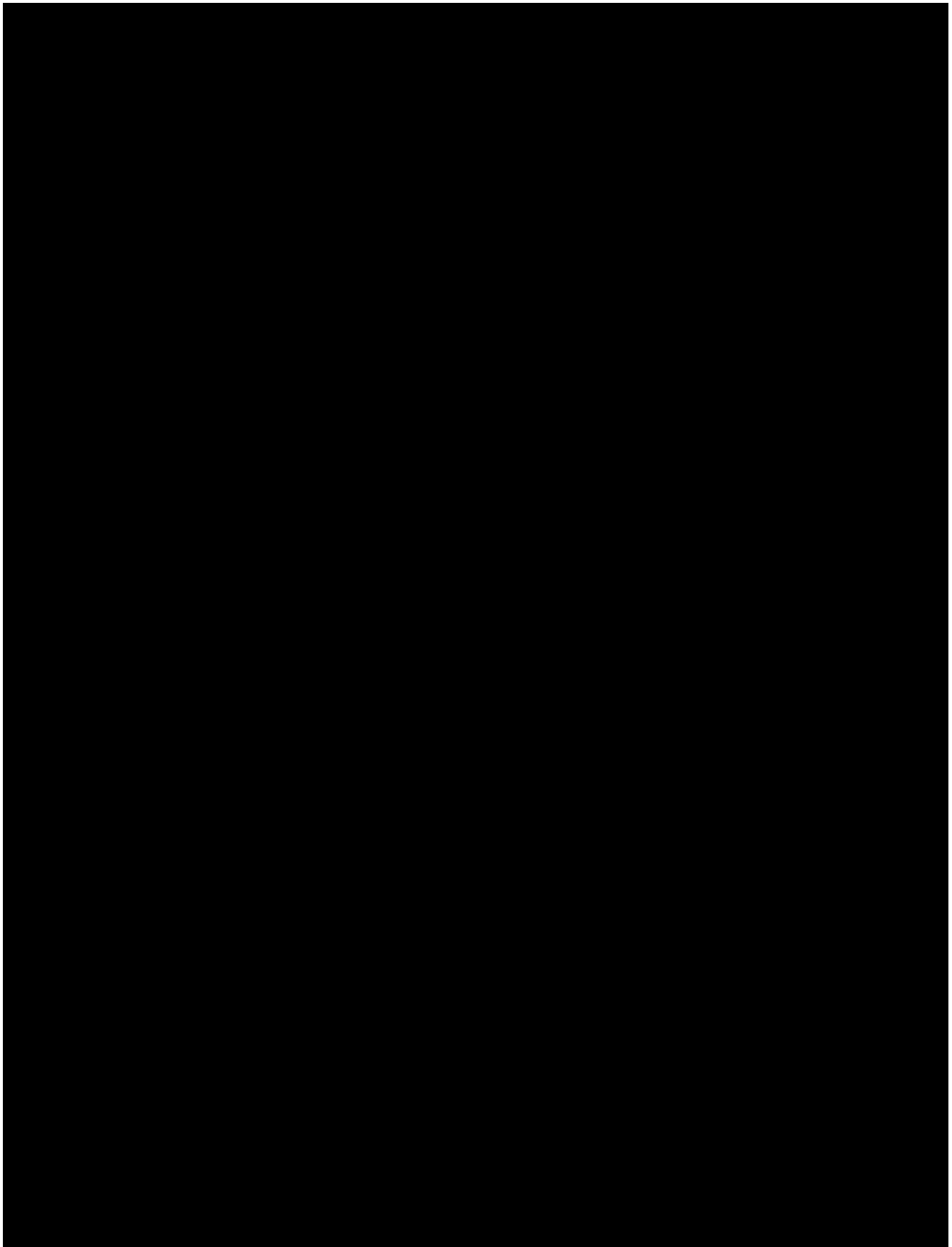
- INIT assumes that ngORCA will be able to gain access to the specification of the Legacy ORCA card and it will be made available early in the planning phase of the project. INIT also assumes that ngORCA is aware that if the Incumbent vendor does not provide the card specification in a timely way, that the Fare Inspection application could face significant challenges during the period when both validator types are in parallel service
- INIT assumes that the DARE Vendor has been selected and is under contract. INIT will want to make contact and have some preliminary technical discussions soon after project kick-off
- INIT assumes all major procurements by ngORCA agencies to acquire new vehicles are under way or the required delivery dates are well defined if the planning horizon is within the expected timeframe of this transition plan
- INIT assumes all major procurements by ngORCA agencies for CAD/AVL equipment are underway or the required delivery dates are well defined if the planning horizon is within the expected timeframe of this transition plan
- INIT assumes the Transition plan will change many times before it is executed. But INIT also assumes that all material changes to the scope of this plan, to the extent they are known to the ngORCA team, have been revealed to INIT for incorporation in the scope of this transition plan

2.8.5.3 Phased Transition Plan

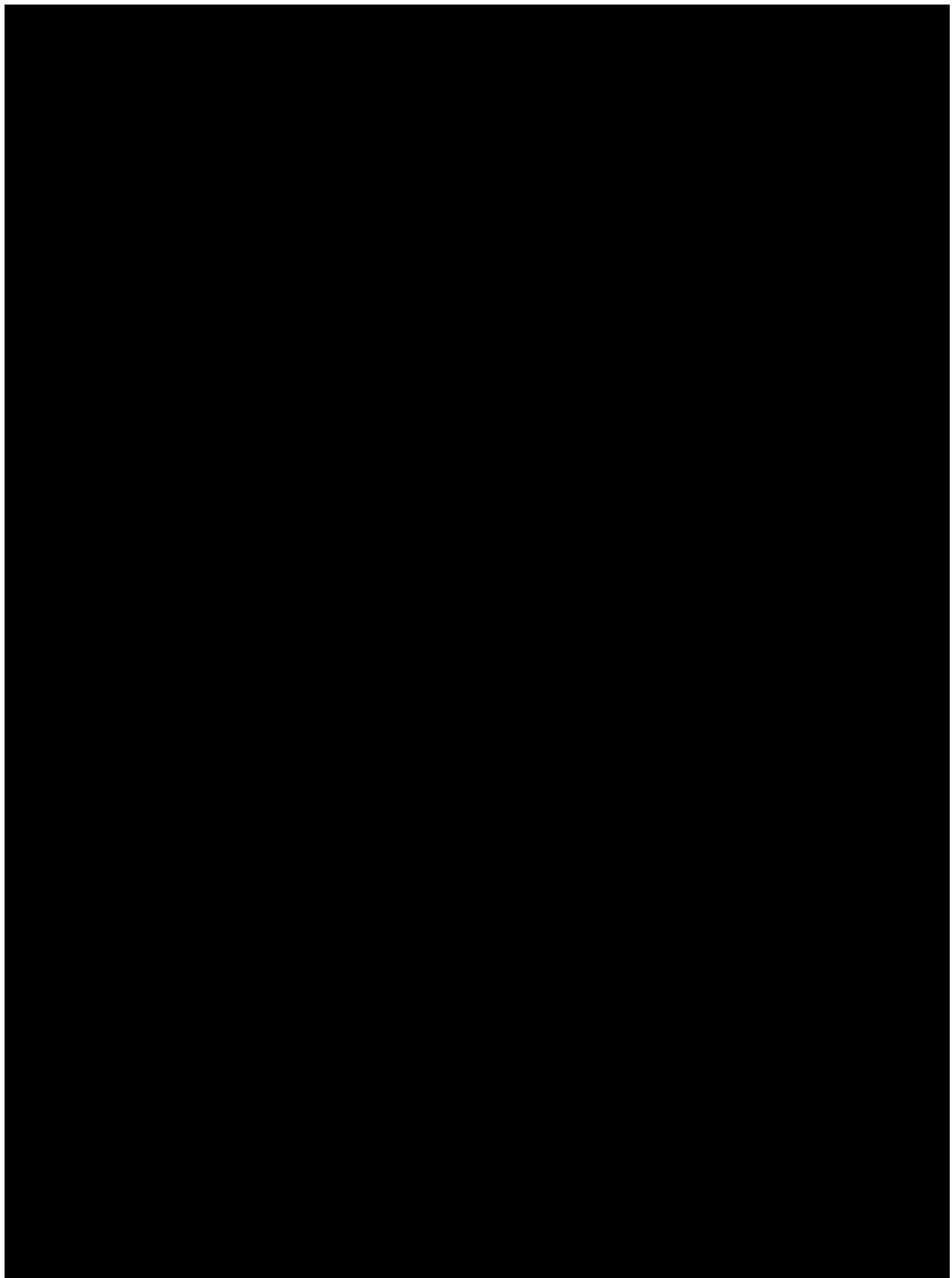


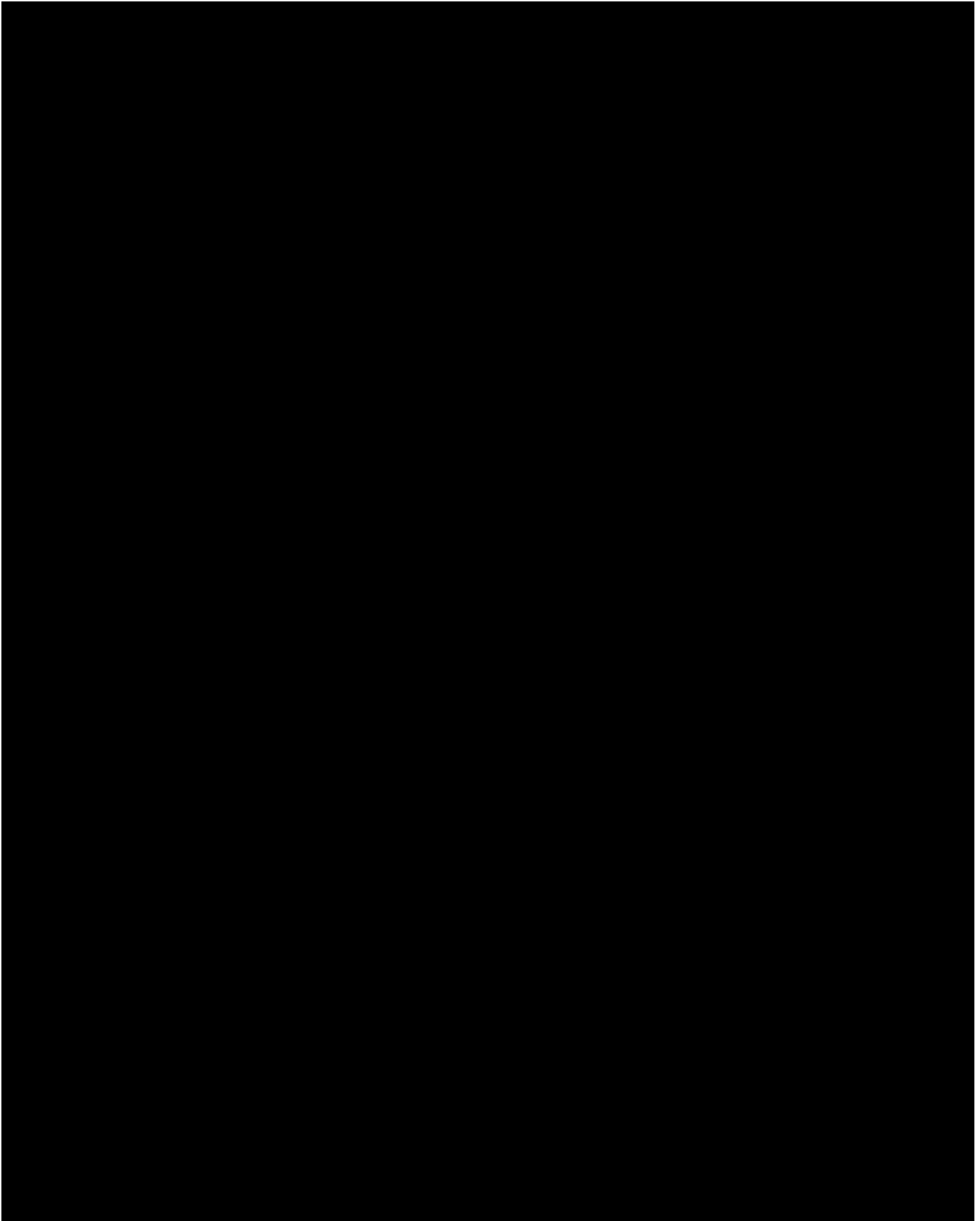


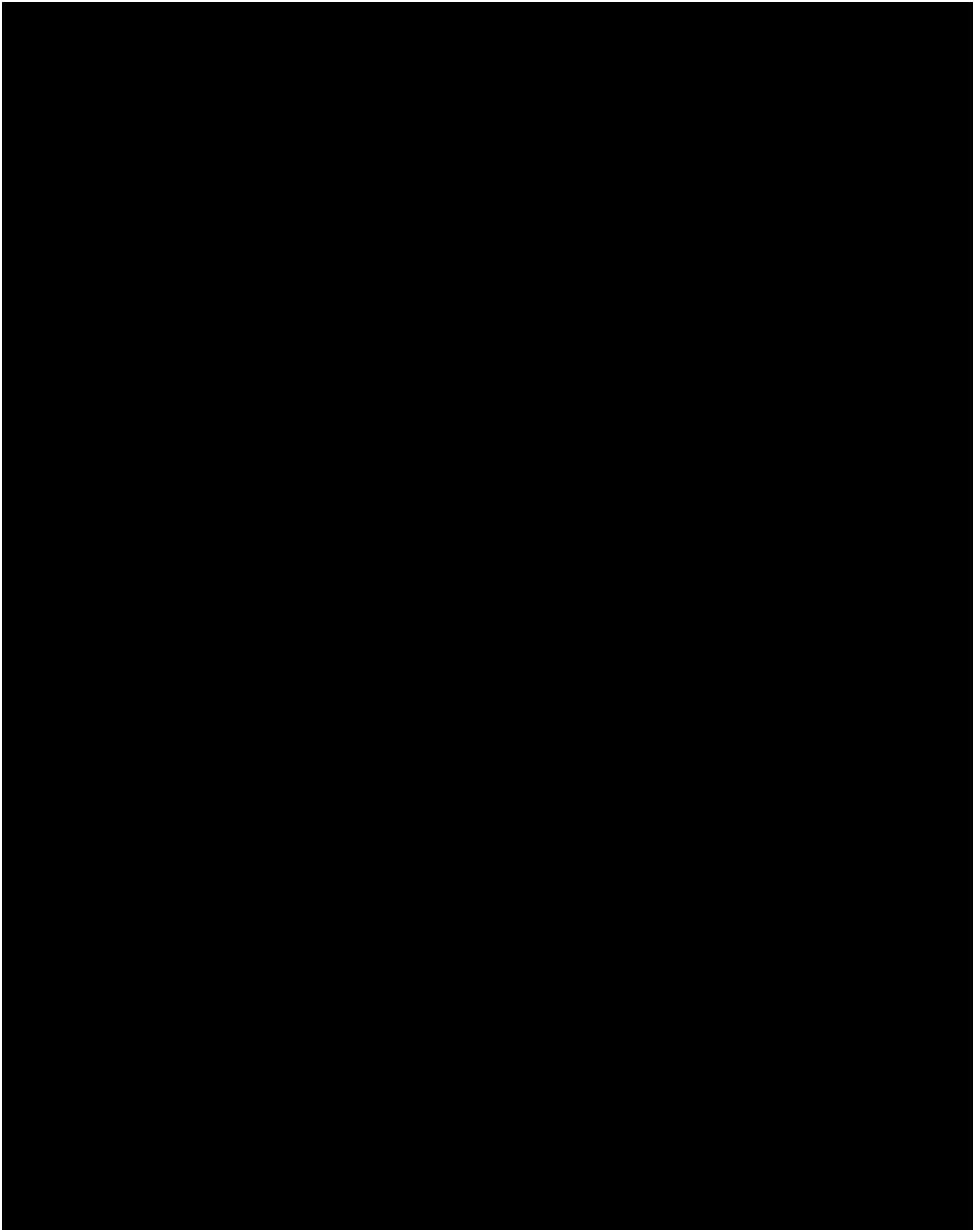


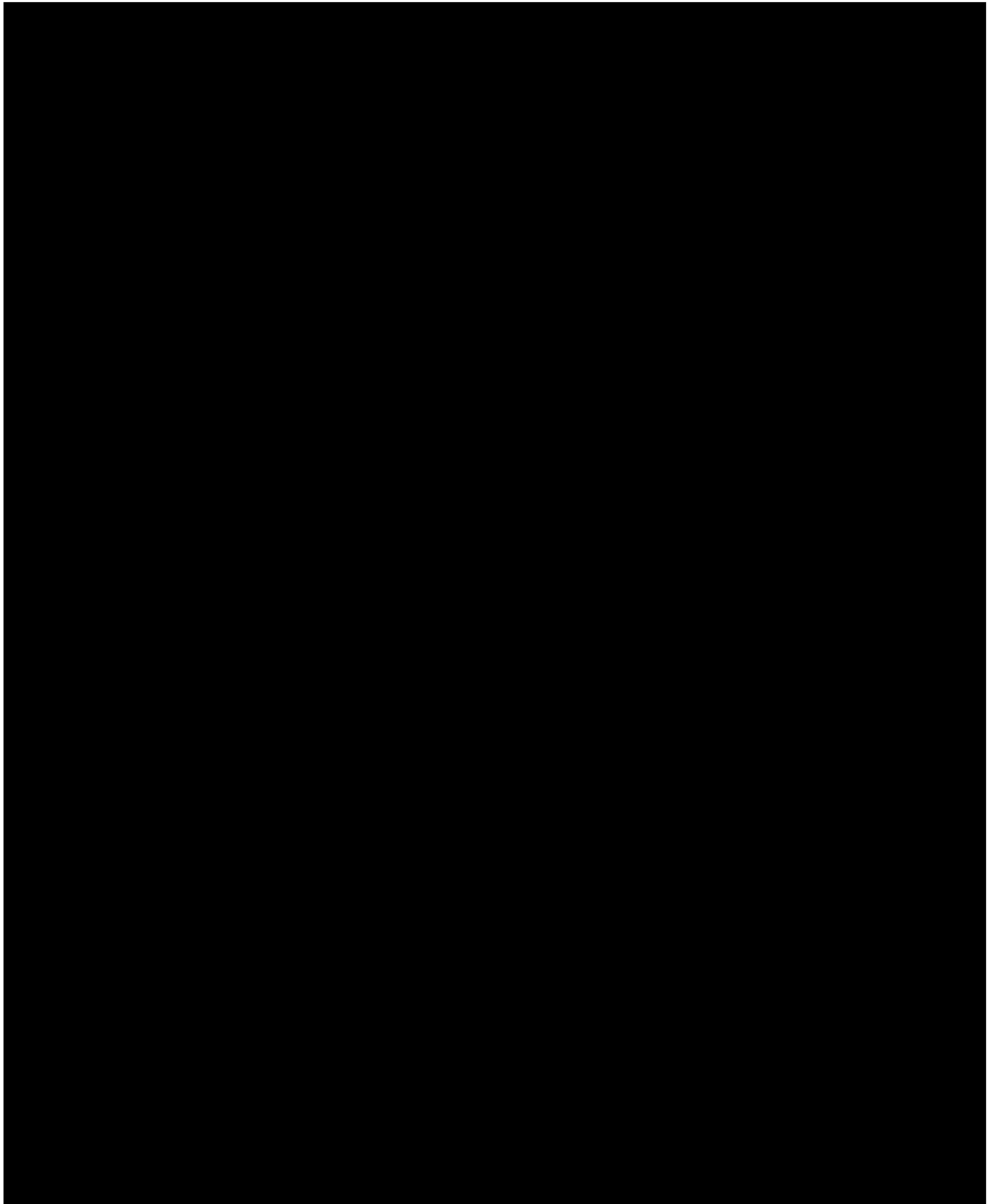


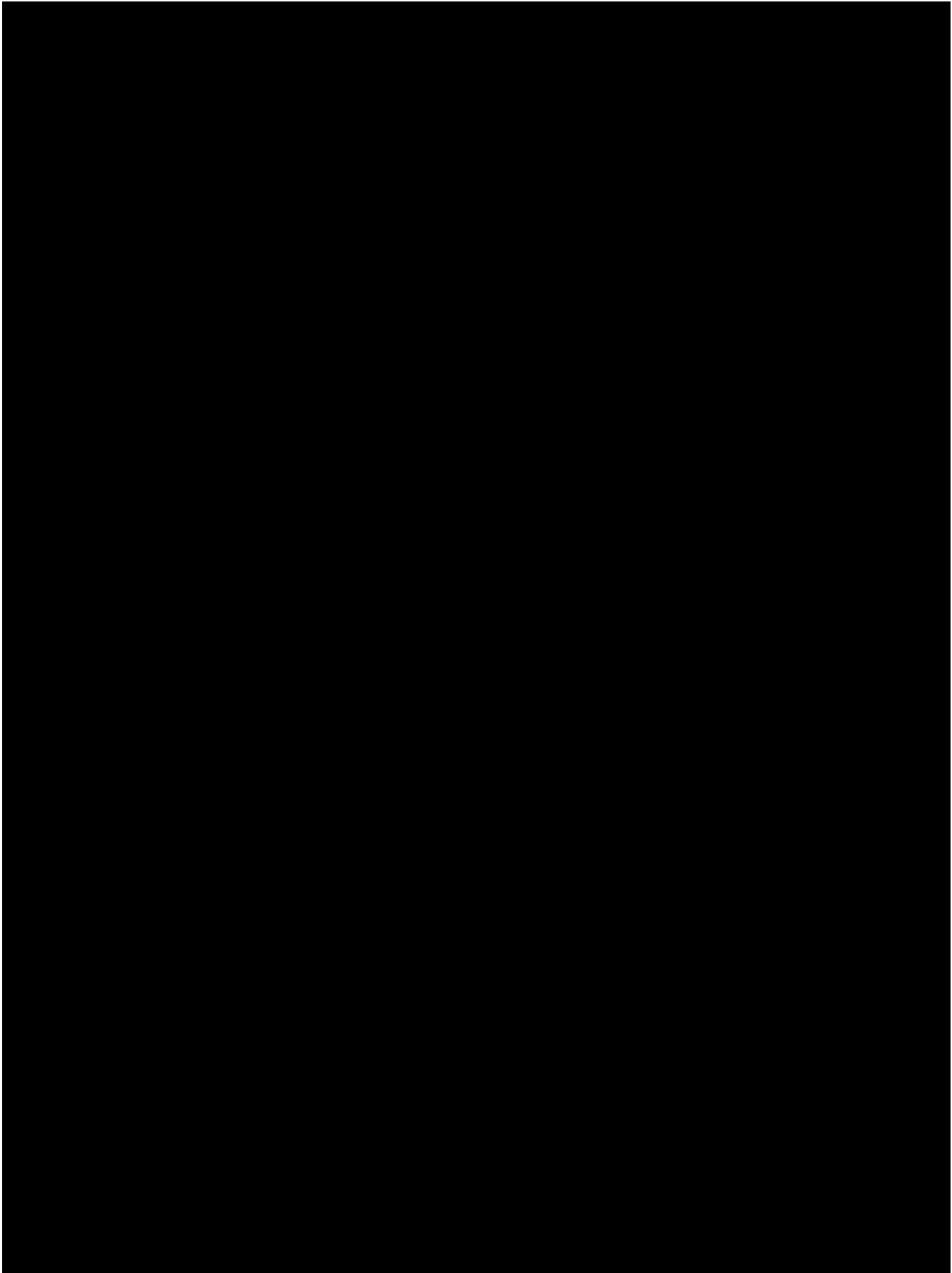


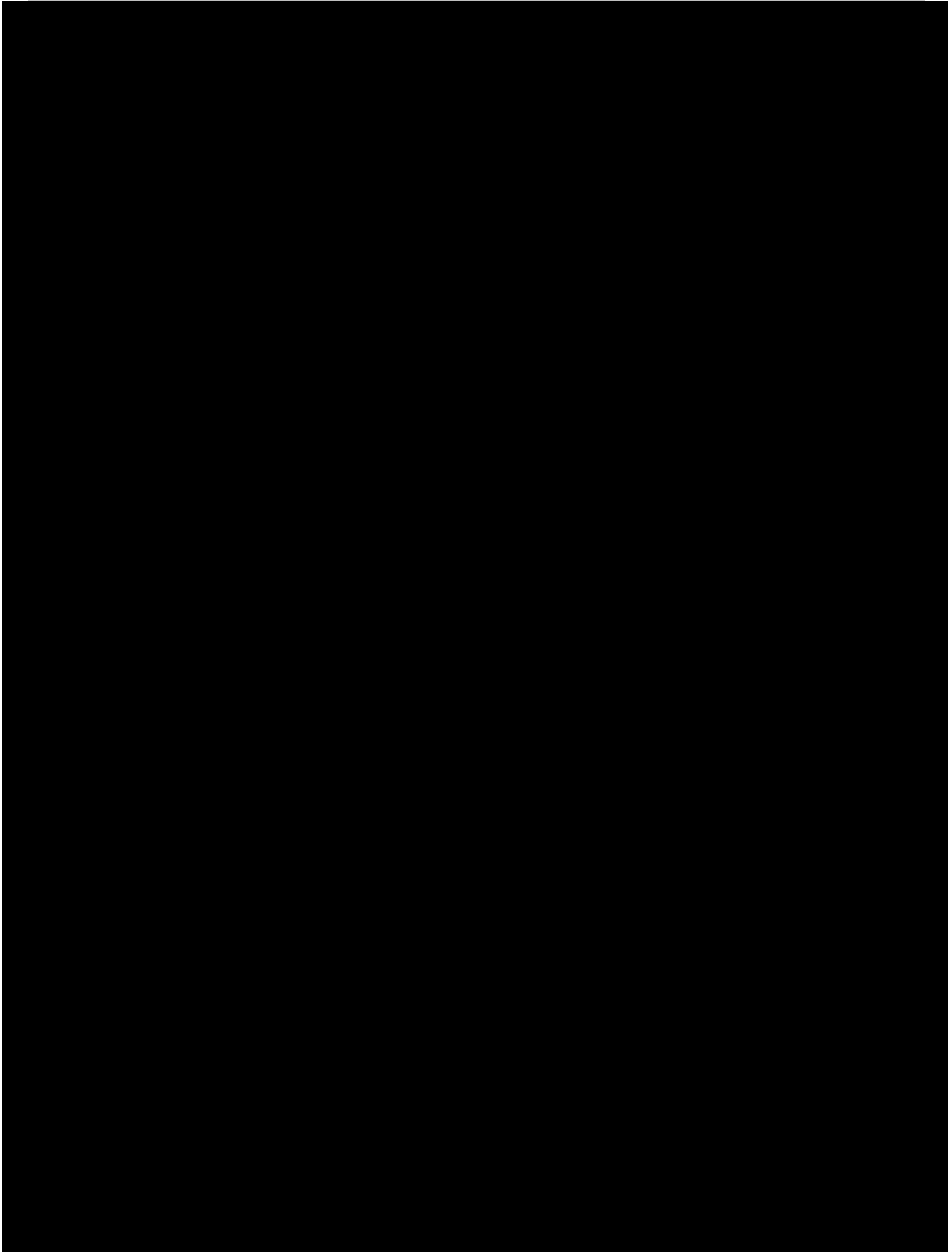


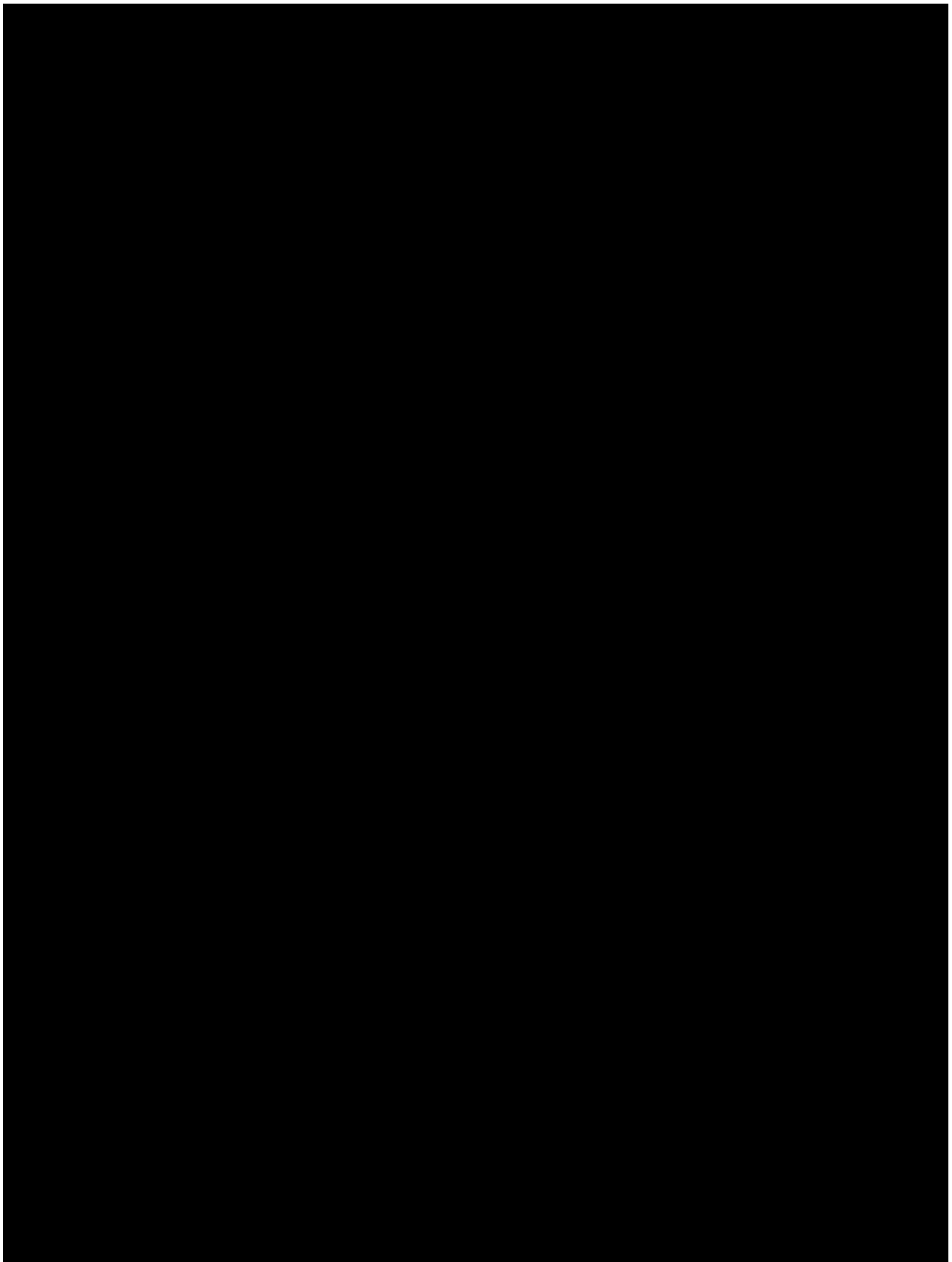


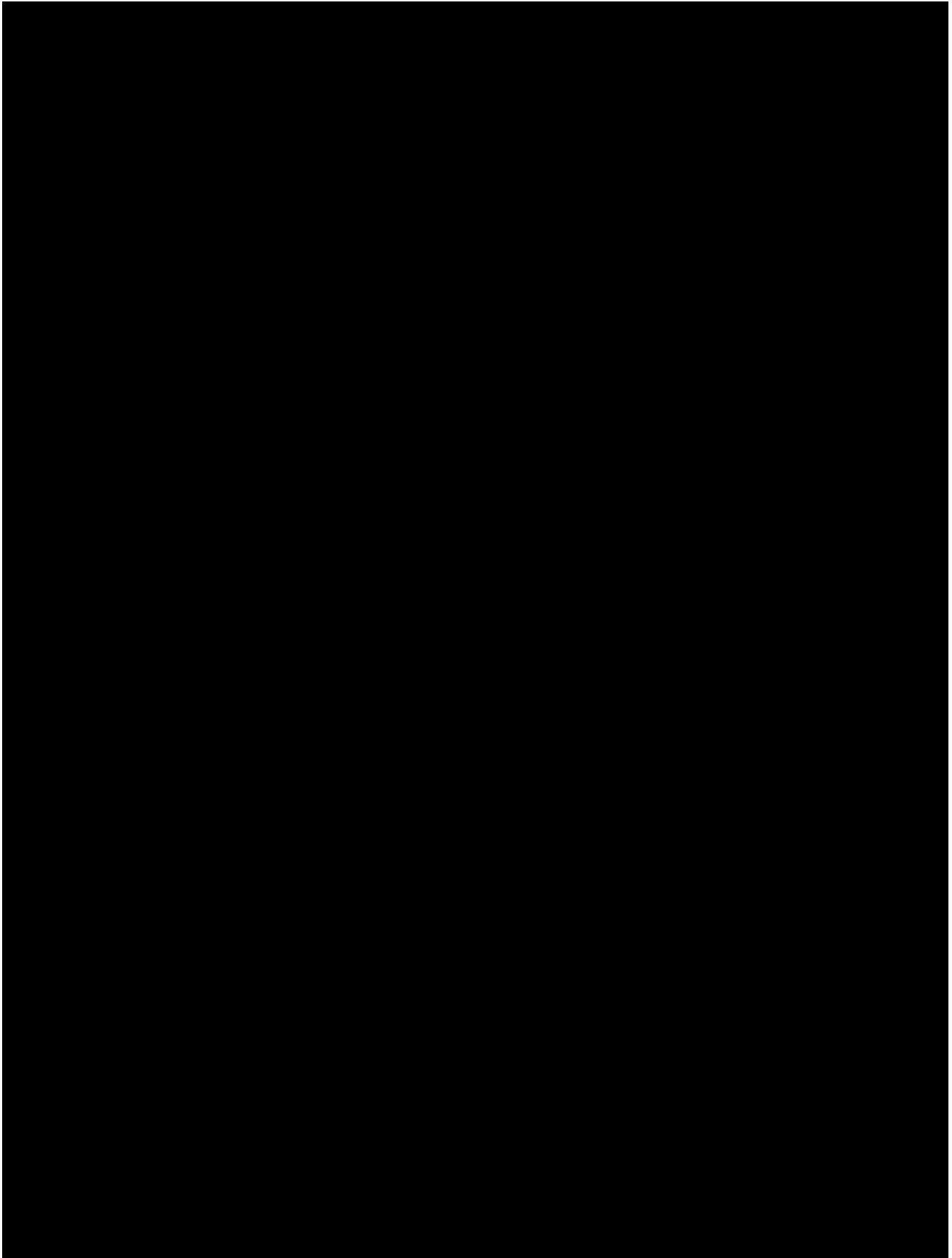


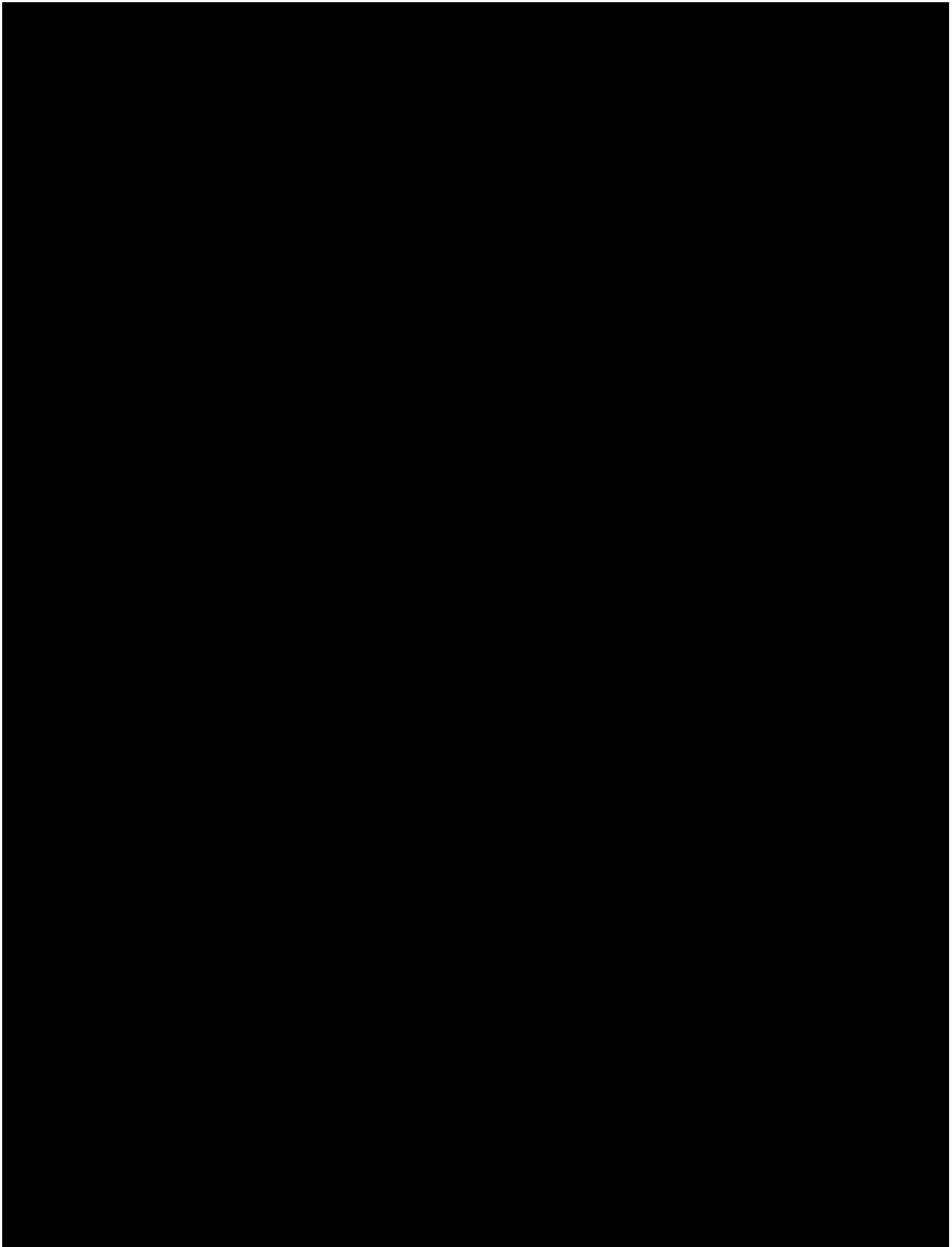


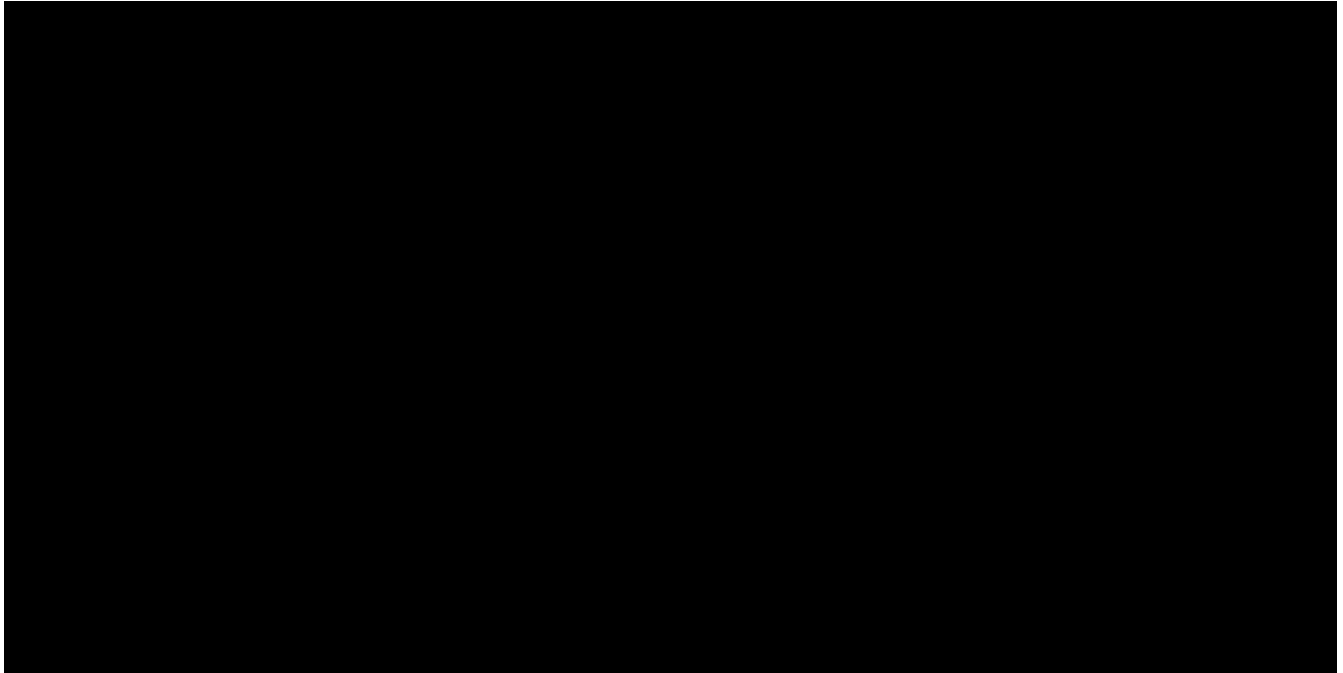


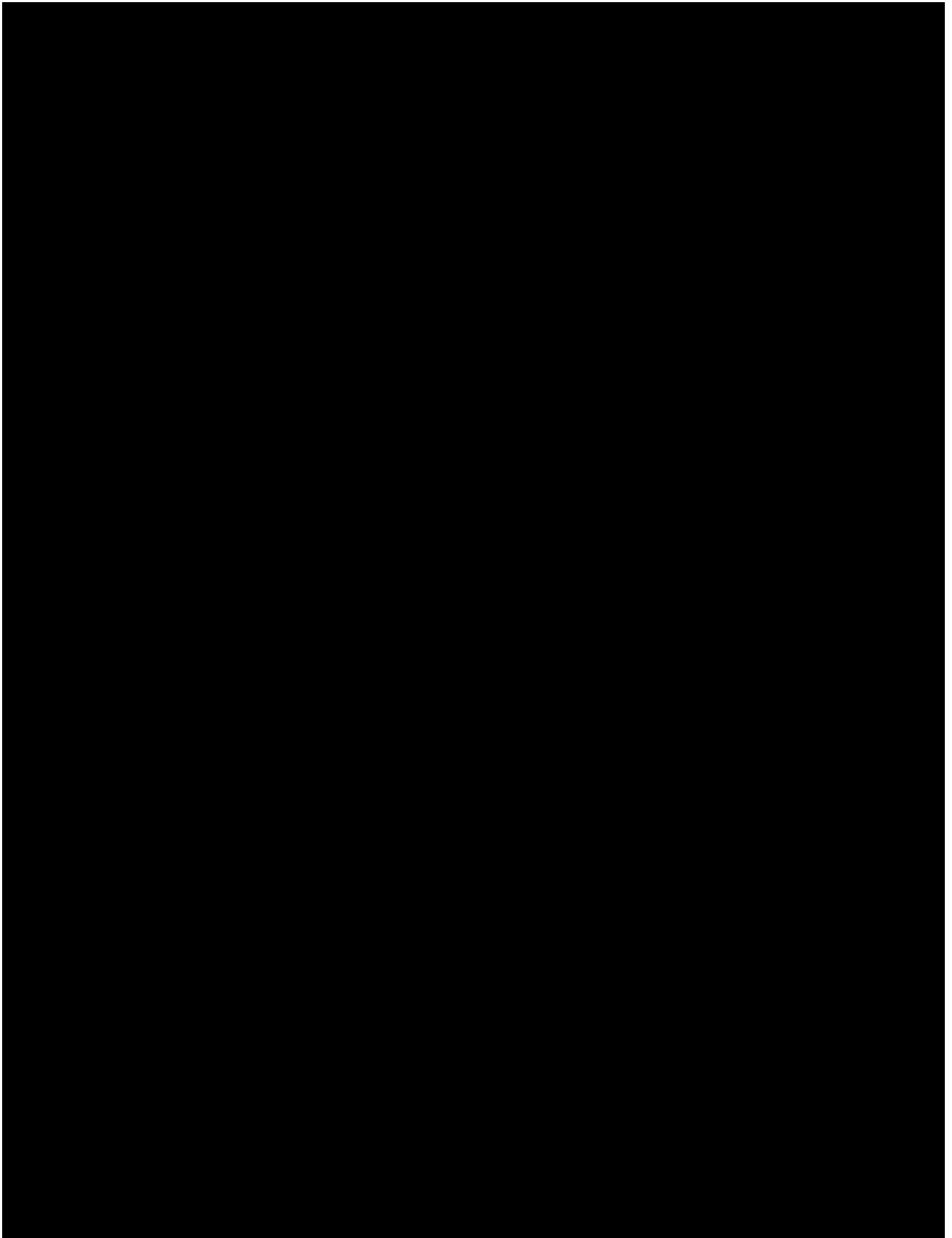


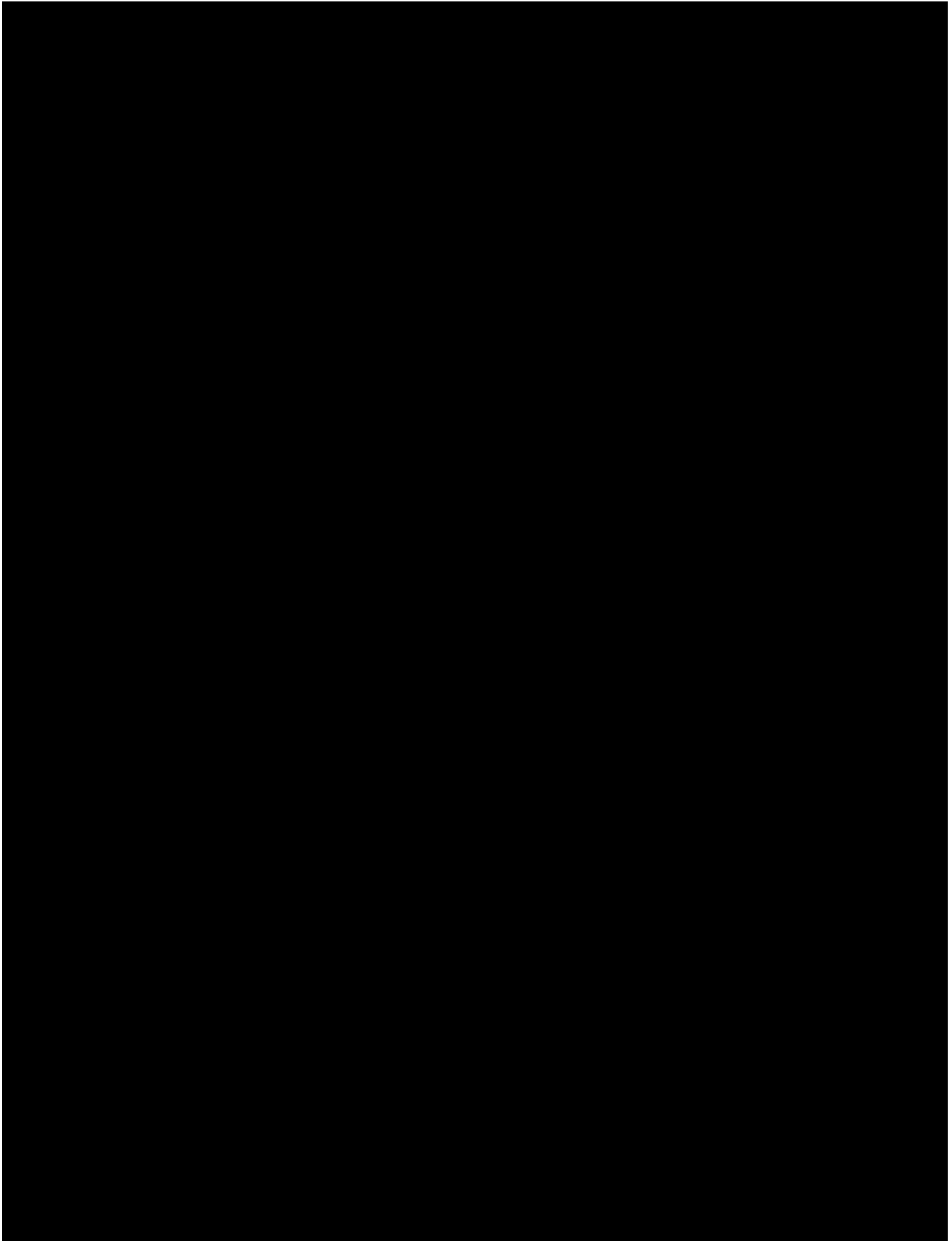


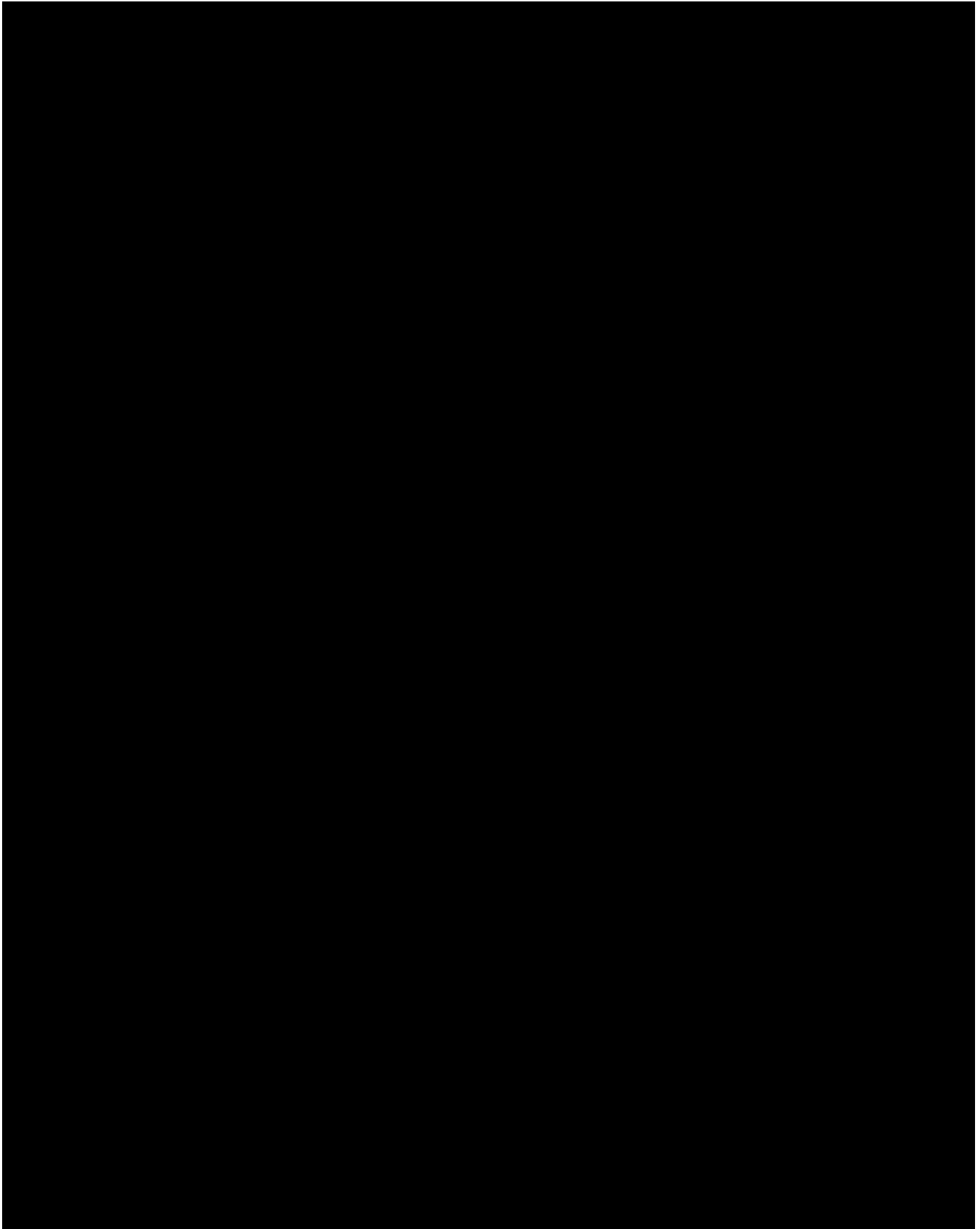


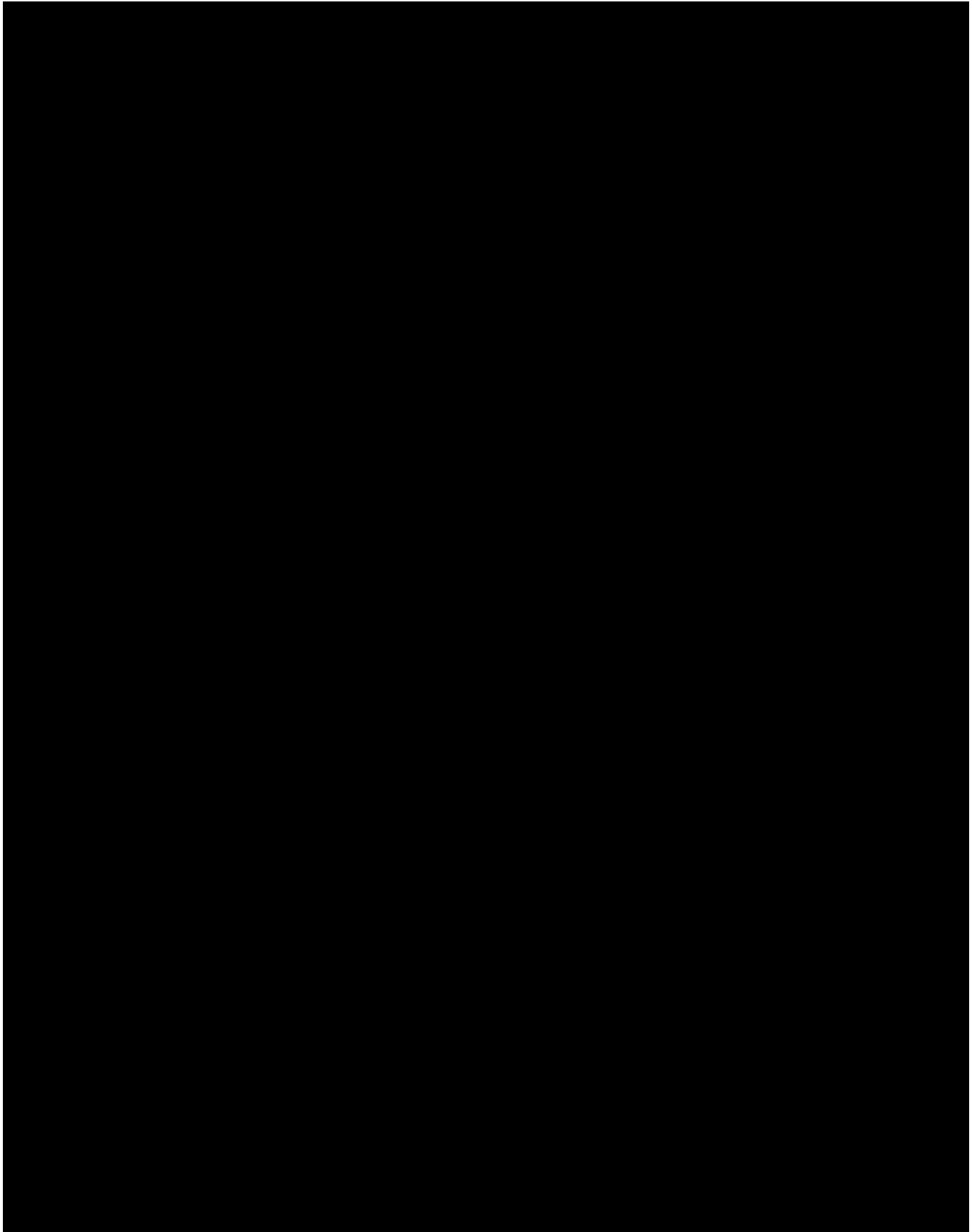












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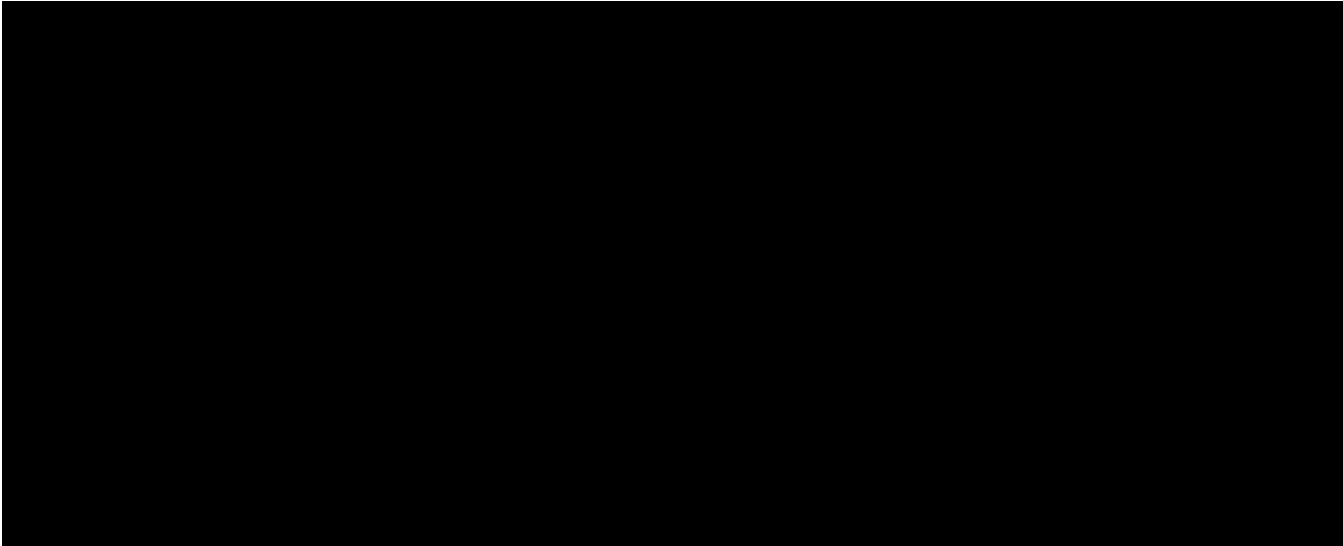
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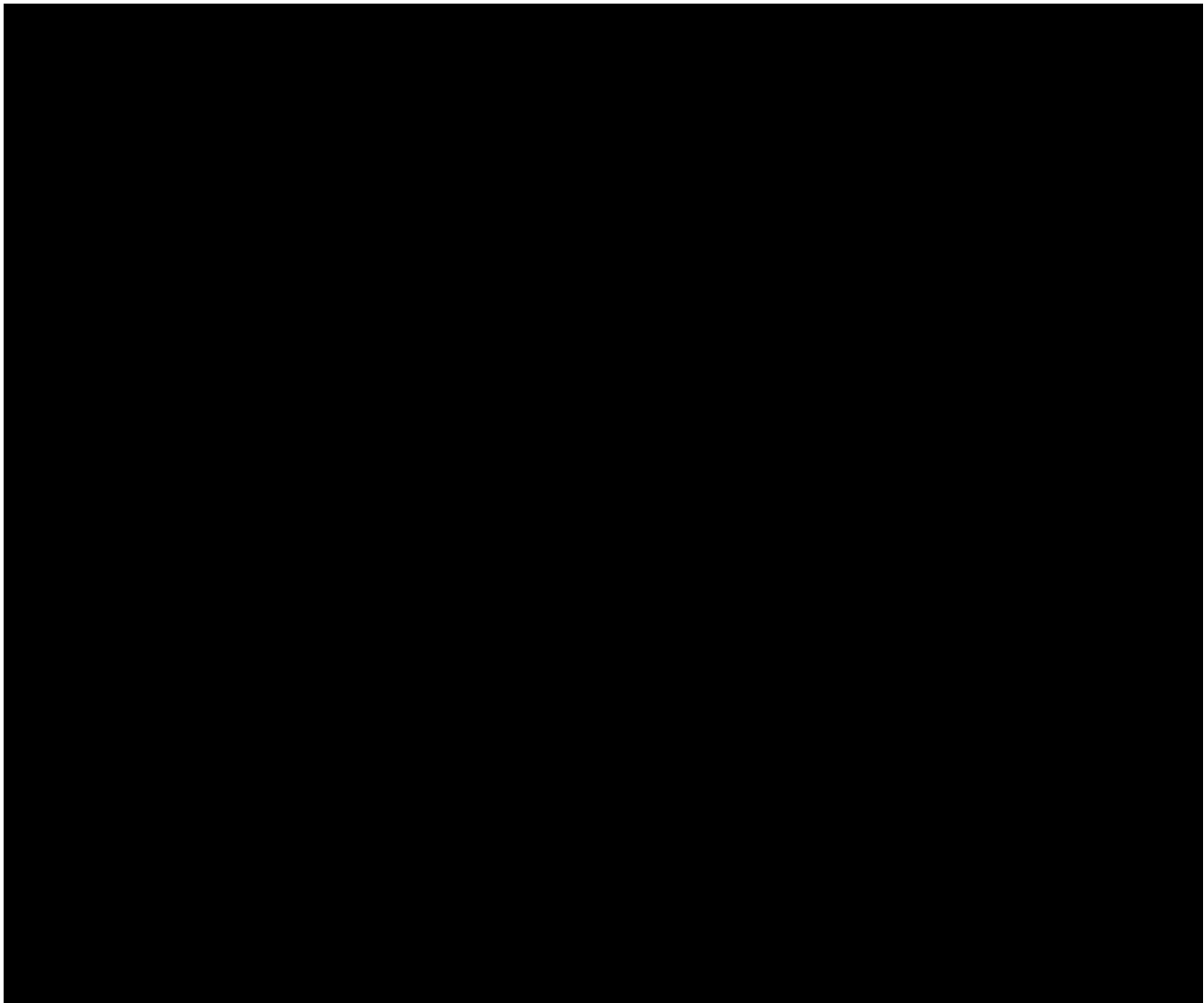
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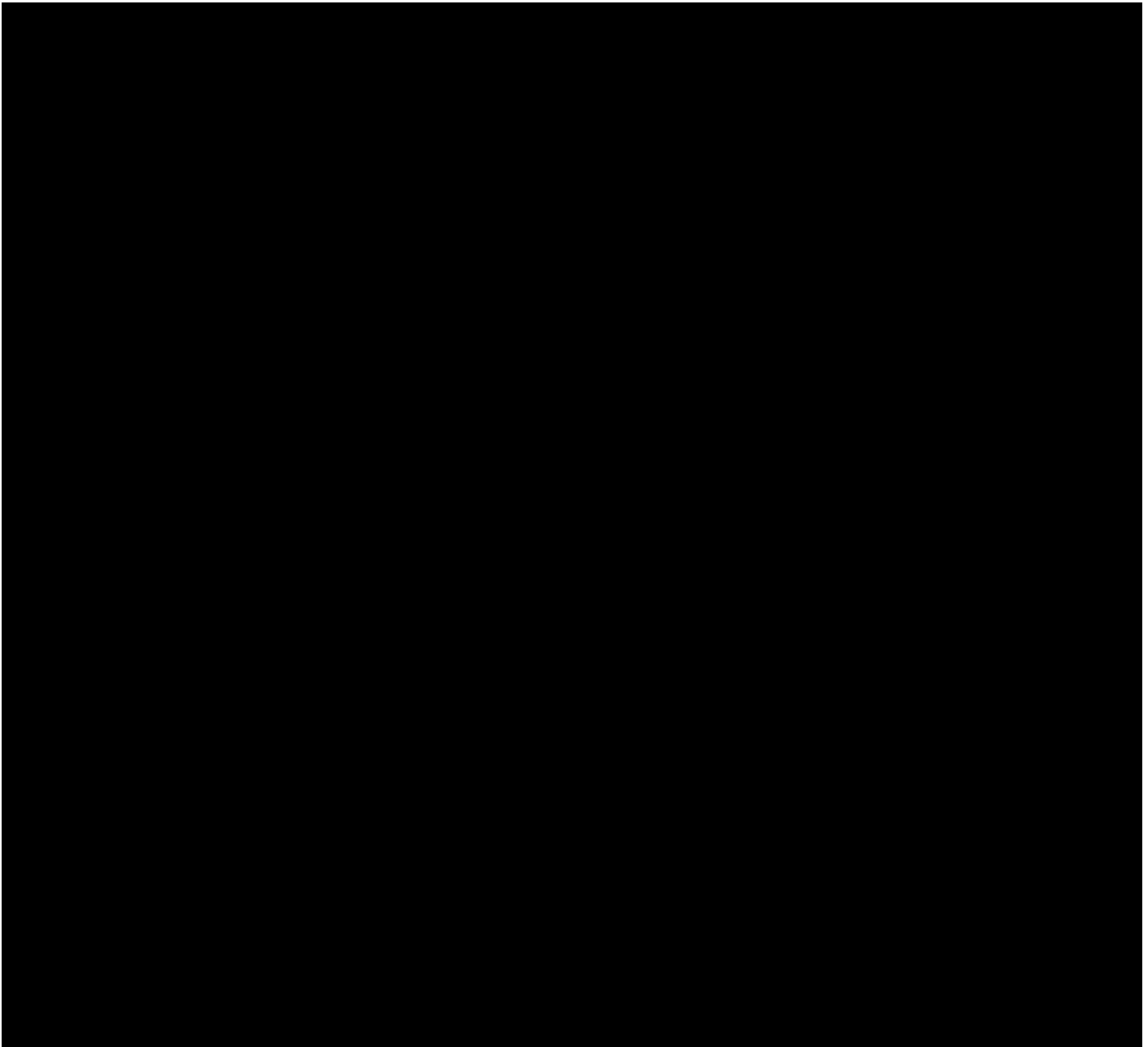
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2.9 Operational Knowledge Transfer and Excellence Through Effective O&M Manuals



2.10 INIT's Experienced and Proven Risk Management Approach





2.10.1 Special Note on Performance

The performance bond covers all capital cost as described in the price sheet (everything except item 5) for the project.

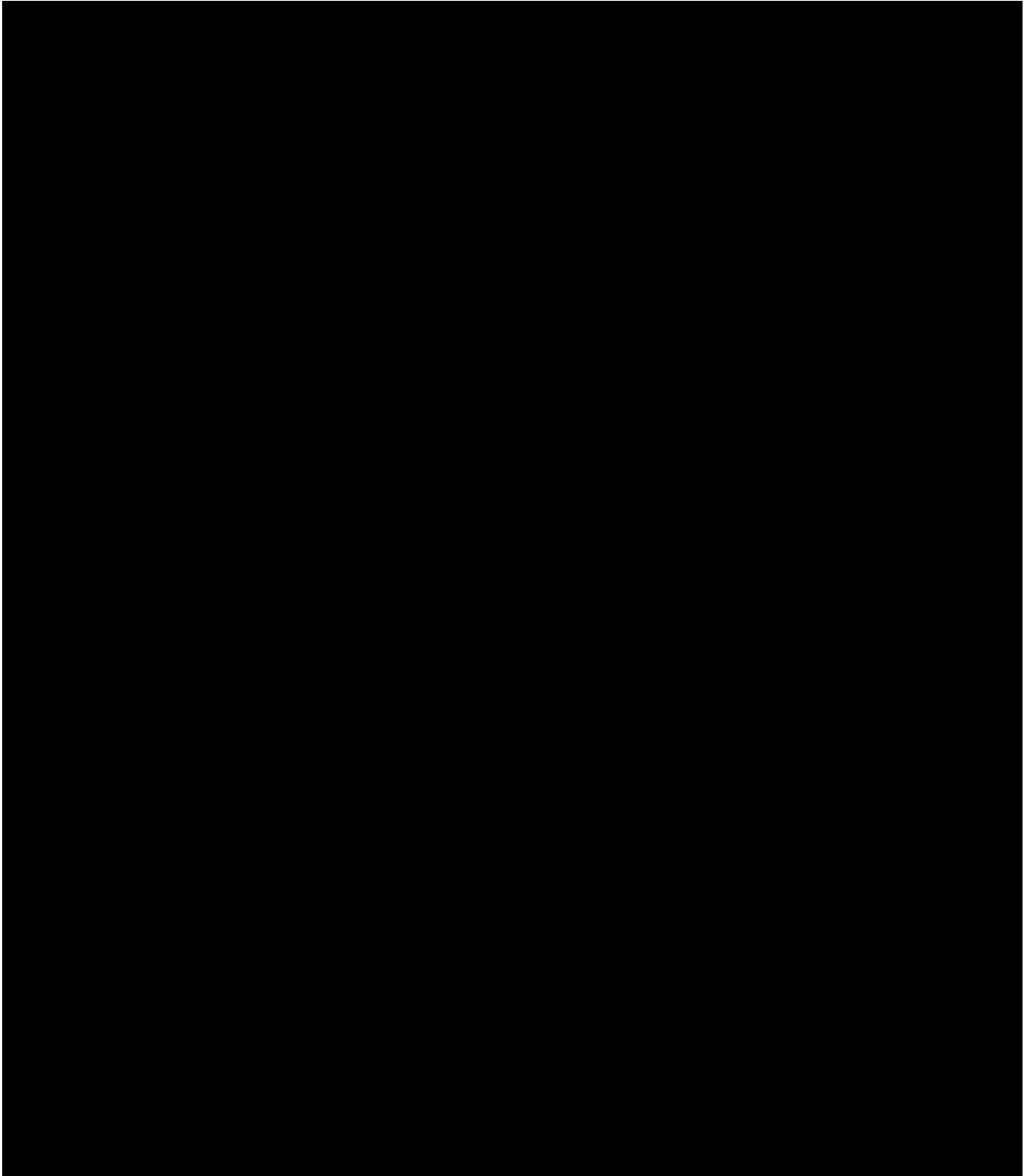
2.10.2 Letter of Credit Clarification

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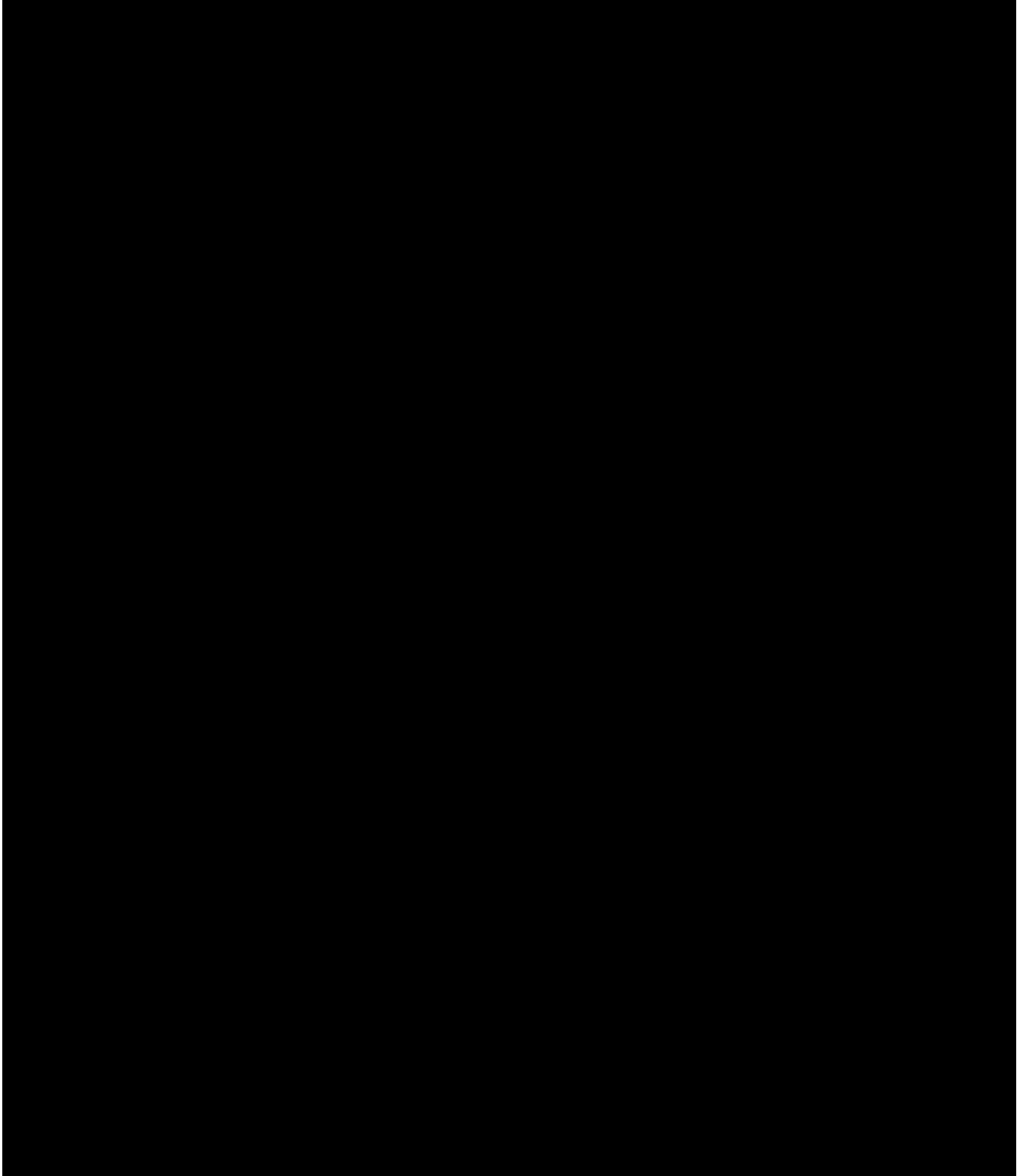
2.10.3 Milestone Based Payment Schedule

This is included as a table in Tab 5.

2.11 Special Considerations or Challenges



2.12 An Achievable Project Schedule



2.12.1 Milestones

The primary milestones of the ngORCA program are comprised of six (6) core stages:

- 1) Procurement Phase
- 2) Design
- 3) Development
- 4) Testing
- 5) Deployment
- 6) Operations and Maintenance

Within items 2, 3, 4, and 5 are a set of key milestones; they are at the top of each section and denoted by green colored font. Where possible we have included the dependent relationships between the other ngORCA vendors and the stages of the program; however, because the specific detail in stages 4, 5, and 6 are not known, creating durations to try and map to the stated Start and Finish dates from Section 1.6 of the RFP would be manufactured and as a result be quite long. In so doing, this would inadvertently displace the System Integrator critical path which we understand is a vital part of Agency review.

In effort to highlight the parallel procurement and integrations efforts of WSF and KCM, some additional line items in the schedule have been added to address points where it would be ideal that certain elements of those tasks would align with the overall SI-schedule. The full extent of these dependencies remains in part, unknown. As such the items created or meant as a high level with the understanding that many steps to reach them are required.

For reference to these sections please note the following specific lines applicable in the Project Schedule:

- **WSF Integration**

- **Line 66, WSF EFS2 Integration Procurement Complete.** To fully incorporate WSF's pending changes we believe finalizing the procurement by CDR completion is critical so that we can include these discussions during PDR. If that is not possible, during the design discussions we need to discuss with WSF their timeline and dependent factors and then revise the schedule accordingly.
- **Line 109, WSF EFS2 Design Complete.** The intention here is to call out our aim that the WSF integration design is complete within the same timeframe as the whole of the ngORCA SI design efforts. Provided this timeline is possible, INIT's

assumption is that the WSF integration follow the same test cycle as the existing SI integration work.

- **Line 177, WSF EFS2 Integration Preparation.** This line was included in the previous iteration of the schedule; however, due to revisions to the schedule made and line items added, we have called out this last point where WSF has been itemized separately from the rest of the SI-driven work. At this point our understanding is that WSF's integration would ideally be available as part of this test (FUT) and as such, future iterations calling out WSF separately are not currently required as we'd want the SIT test to include all integrations and system components collectively. However, future detailed iterations of the schedule may require something different; when the unknowns are clear.

- **KCM MDT Integration**

- **Line 110, KCM MDT Integration Design Complete.** It is INIT's understanding that KCM's MDT procurement is separate from ngORCA from the equipment perspective; however, the MDT design and integration needs should occur within the ngORCA SI timeline. As such we have started the KCM MDT Integration at this stage as our aim would be the design is complete at the same time as the rest of the ngORCA efforts. We anticipate new and more detailed information would become available and as such would be incorporated into the schedule as needed to ensure dependencies and timelines are clear for the ngORCA program.
- **Line 120, KCM MDT / DDU Integration Development.** We have created this line item separate from the remaining SI-integration development due the nature of the MDT integration which is separate but known from ngORCA. Within this line item we have assumed that the work must be complete in line with the same timeline as we anticipate FUT start to occur. That said, this may not occur or be possible based on variances unknown currently but wanted to create a placeholder for an ideal scenario given the successor dependencies.
- **Line 164, KCM MDT Equipment Functional Testing Passed.** Since this equipment is procured outside of the ngORCA SI-procurement, this line is meant to ensure KCM MDT equipment tests pass within the same or similar timeframe as those of the ngORCA procurement.
- **Line 168, Confirm Order Timelines for New CT and KCM MDT (INIT Provided).** This line was in the previous iteration of the schedule; however, considering the recent additions to the project schedule we wanted to call out the line change. The intent of this item is to ensure the dependencies and timelines of separate procurements are known and that information built into the project schedule.

Beyond this line our expectation currently would be that the ideal scenario is that the remainder of the KCM MDT integration effort follow the rest of the SI schedule collectively. Should this not occur or new information become available, we will update the schedule and outline the dependencies as needed or discussed.

In light of the new points addressed above, the key factor we would like to outline is that these tasks are meant as points of intersection in the schedule so as to call out the work at a high level to extent possible now. It is clear more detail and additional items are needed to fully outline the integration and dependent project factors. However, currently these are unknown and as such these high-level items are meant as placeholder or points in which we believe a certain element of the work should be ready or near complete. Ultimately, our goal will be that the SIT test is inclusive of all integration elements for WSF, KCM, and CT so that we can demonstrate full system functionality and integration.

2.12.2 Procurement Phase

The Procurement phase has been added at the start so as to provide a clear understanding of when Notice to Proceed will be issued for the start of the System Integrator work and also, to denote the other vendors that will also be integrated as part of the overall ngORCA program.

2.12.3 Design

During the design phase many major decisions will be made as well as a multitude of small to medium ones; those decisions are critical but can also be difficult to do when other constraints exist. We understand that time is a valuable asset to Agency stakeholders; with that in mind, as well as to maintain as much efficiency as possible, in the schedule we have proposed our industry-leading approach to system design. While not explicitly noted in the schedule, another major aspect of our design review will be the early engagement of our UX/UI partner as their involvement will be filtered across many elements of the overall system design.

We have taken into consideration the schedule-driven aspects of the program, the necessity of clear and thorough documentation, as well as the maturity of each system component. With that, as well as the existing service-proven implementation of significant portions of the INIT design and subsystems, we believe we can provide the most schedule and design advantage in the industry and successfully parse the design into at minimum two (2) separate 'packages'. In so doing we can work towards approval on specific documents and move those through the design review at a greater pace.

When reviewing the different design review stages, you will notice a staggered approach. We plan to attempt approval of package 1 sooner than package 2 at each interval. However, each

design review stage in its entirety will not be formally 'approved' until all documents in both package 1 and package 2 have been formally approved. INIT's Project Team will create and manage a document control and tracking sheet that will keep the Agencies apprised to the various states and stages of each document.

In pursuing an agile approach at INIT we have found we can find more time to allocate to system areas which require further discussions, clarification, stakeholder buy-in, and so forth without impact to the overall design review and schedule as a result. In fact, we have found that we can actually gain some schedule advantage and increase the pace of the overall delivery. Additionally, as part of this approach we will begin to outline during CDR, where dependent decisions need to be made, where points of the design intersect, and where relevant, critical-path impact points.

Also of note is that each design review stages have a series of workshops to occur on site at the Agencies designated location(s) in the Puget Sound region. At each design review stage these workshops will vary in their approach. During CDR we will likely only have one primary week and will be attended by the core INIT Project Team and also key subject matter experts (SMEs) from both our US and German teams. We bring our SMEs to the discussion during these workshops as we have found this approach to on one hand, create efficiency in communication and collaboration and secondly, to begin to build the relationships necessary to extend the workshop interaction into effective discussions when they must be remote due to location differences.

Moving into PDR and FDR these workshops may be staggered between onsite and remote meetings, or a combination of both. Further, the occurrence of these workshops or other SME meetings will be greater as the fine tuning of the design becomes critical for the build stage.

2.12.4 Development

INIT takes an approach to system design that allows for the greatest flexibility for the longest duration. In order to maintain the schedule, at certain points decisions have to be final; however, we do not believe you have to compromise the integrity of the business needs in order to do that. With INIT you will experience thoughtful and creative technological and business solutions while also engaging in a collaborative process.

During the PDR stage INIT will begin some of its development in order to better fine tune and understand the decisions that will need to be made during the following stages. Also, as the System Integrator the INIT API's are major factors in the overall ngORCA program implementation. Fortunately, INIT has built many of the API's required for ngORCA's needs and are currently in live operation in other projects. In light of these factors INIT will build upon their

maturity in the early development stages so they are available as early as possible for other partners to build against. Along similar lines the back office is also a major part of the ORCA transition. As with the APIs, there are key dependencies that will have impact on the overall schedule necessitating conversations and plans be made earlier in the process. Fine tuning will continue to occur, but those major decisions will need to be outlined early on so that the path forward is clear.

As part of the build stage INIT will work on the testing and procurement of the system equipment. Equipment will go through the requisite pre-testing (environmental, shock, vibration, etc.) prior to their manufacture, have procurement, assembly and test stages at varying pace, as well as their own installation schedules. For the moment, this level of detail is not yet added to the schedule in significant detail but will be added as the final deliverables and schedules are established with line items per Agency, per item of equipment and so forth.

Additionally, the training program content will also become clearer as the development of system components are further along. With that, INIT will begin creation of the system manuals that form the basis of the training documentation. During this stage INIT will begin to submit and review with the Agencies these materials. Later iteration of the schedule will summarize the document packages associated with each training course and the courses themselves as well as their quantity will be built into the schedule, by Agency where appropriate.

2.12.5 Testing

There are several different stages that comprise the test phase of the program. Generally speaking, INIT will undertake functional testing first and as part of that execute on the various test stages that articulate the different needs of the system which can occur in varying timelines based on what factors are present. Following that, the system will undergo the integrated testing. Here INIT has added additional slack time specifically because this is often one of the most complicated elements of the schedule as it is the point where all elements need to come into alignment. INIT will elaborate the detail of the schedule (rolling-wave planning) as preparation for this phase comes into light and the detailed break-out of each test stage are clear.

Of critical importance is the balance between integrated lab testing and making the decision to move to a production state of this integrated test (field test). In so doing key decisions have to be made, the financial management application and reconciliation in place, and so forth as this testing becomes part of the production system.

2.12.6 Deployment

The deployment phase is comprised of multiple key factors. It is ensuring all the requisite equipment has been installed, tested, and functions according to the requirements of each stated test plan. During the more advanced tests in the Integration Testing phase (e.g. FIT or Pilot Test), the deployment will validate the system design and development have occurred and are working in an integrated and stable manner with equipment in production connecting in a simulated back-office production environment.

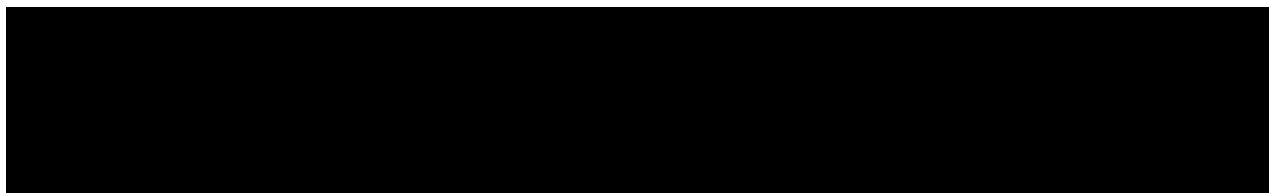
To support the integration and transition, INIT has noted the perceived benefits of including the legacy ORCA equipment as part of the Agencies ngORCA test facility implementation. Should this be possible, INIT proposes a small dry-run test in the lab prior to moving the full scope of the Pilot Test to the production environment. During the Pilot Test, the deployment is still within the confines of the limited roll-out and remains as such until the completion of the test and the system has reached the point in which INIT will become the system of record.

Once the system has gone through a dry-run test, if applicable, and successfully concluded the Pilot Test, and any residual issues or functions have been deployed, we then move to the public launch – the scope of which can be mutually defined – and initiate the point in which INIT becomes the system of record. This is an exciting point in the schedule but also a critical point as the system-wide installation is initiated without restriction and any future changes must be factored with both risk and impact due to the quantity of users engaged in the system. During this stage INIT will work with the ORCA agencies on deployment strategies and management to ensure the best possible outcomes.

The next key test phase is the system acceptance test; during this time INIT will report on the system health as determined by the performance metrics (KPI's) of the contract. During this stage the system is live and must adhere to these metrics and fall within the framework of the contract's requirements. At the moment the detail here is to simply note the acceptance test period as well as slack for any rework; however, in future iterations of this schedule each KPI will be added as well as its associated test documents.

Outside of the above acceptance testing, there may be a punch list of items necessary in order to achieve final system acceptance in its entirety. As those activities are known they will be added so that the path for the project completion is transparent for all stakeholders.

2.12.7 Operations and Maintenance





2.12.8 Summary

In closing, we believe the ORCA agencies will find INIT's proposed schedule to be competent in meeting the needs of the ngORCA program timeline while also balancing the required time and dependencies for successful delivery of the required deliverables and outcomes within each specified stage.

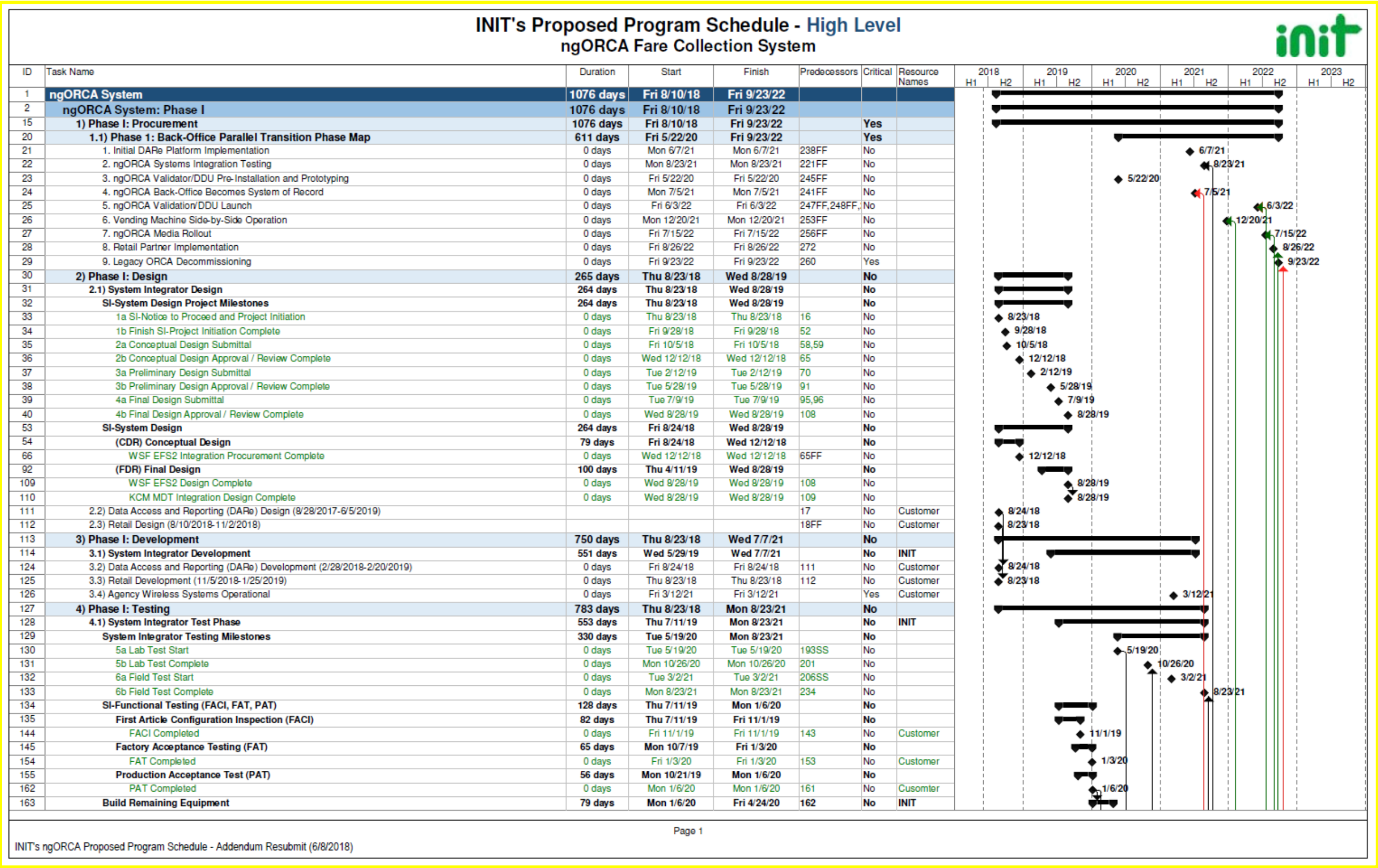
With the experience of having delivered account-based fare collection projects with stages similar to what ngORCA needs, we are relying upon real experience, lessons learned, and the success of witnessing first-hand what results out of implementing best practice approaches to these complex systems.

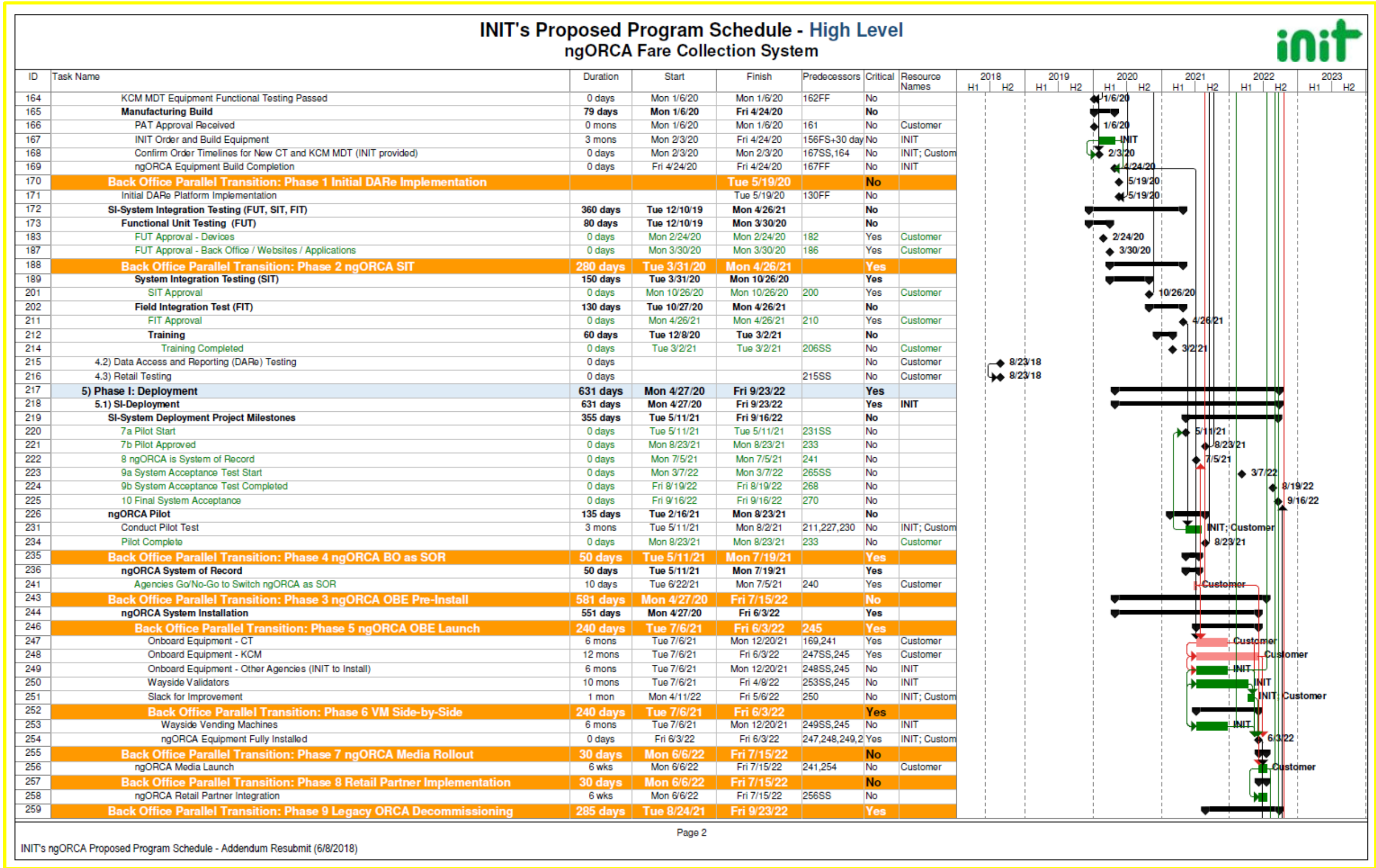


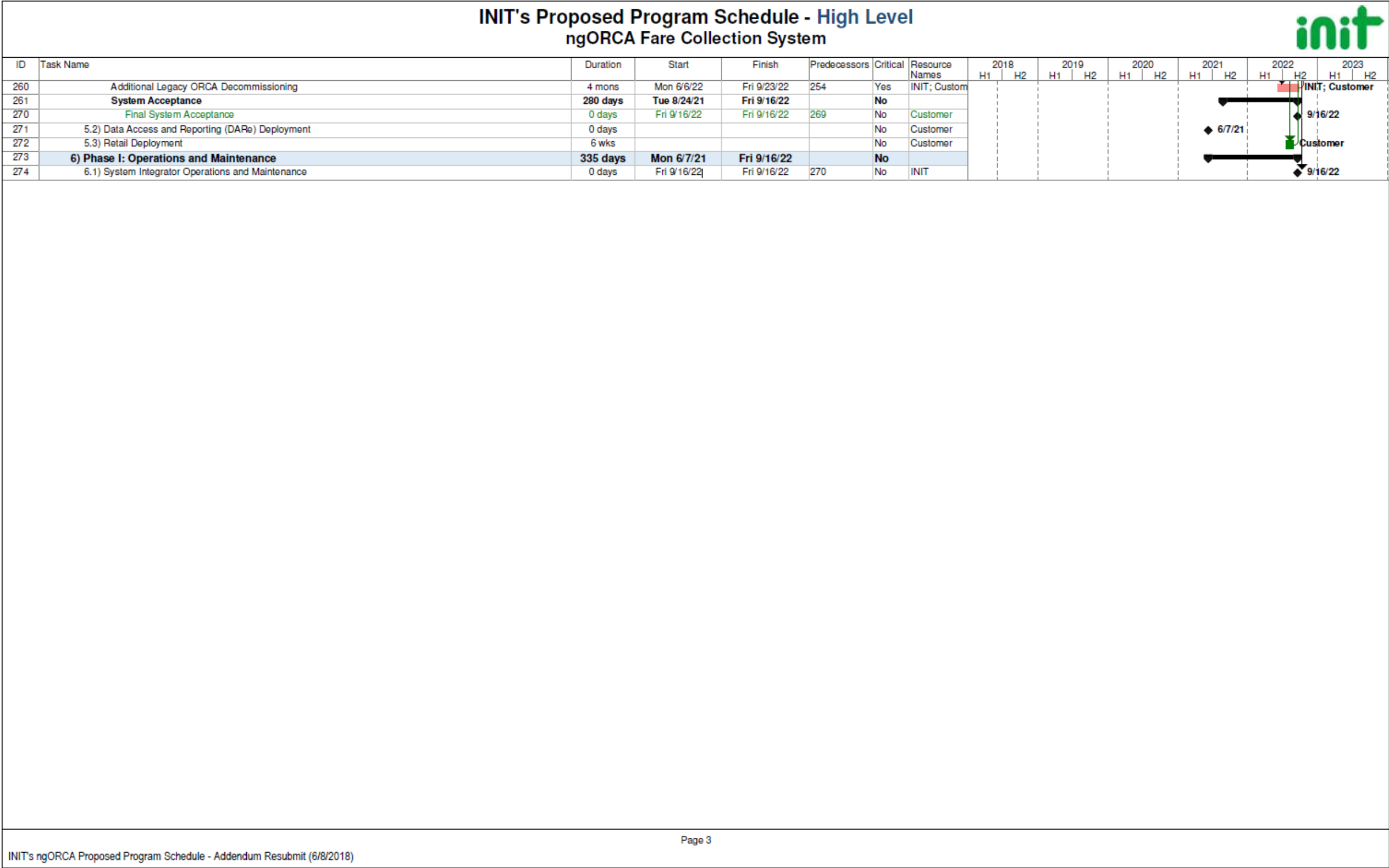
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2.12.9 High Level Timeline

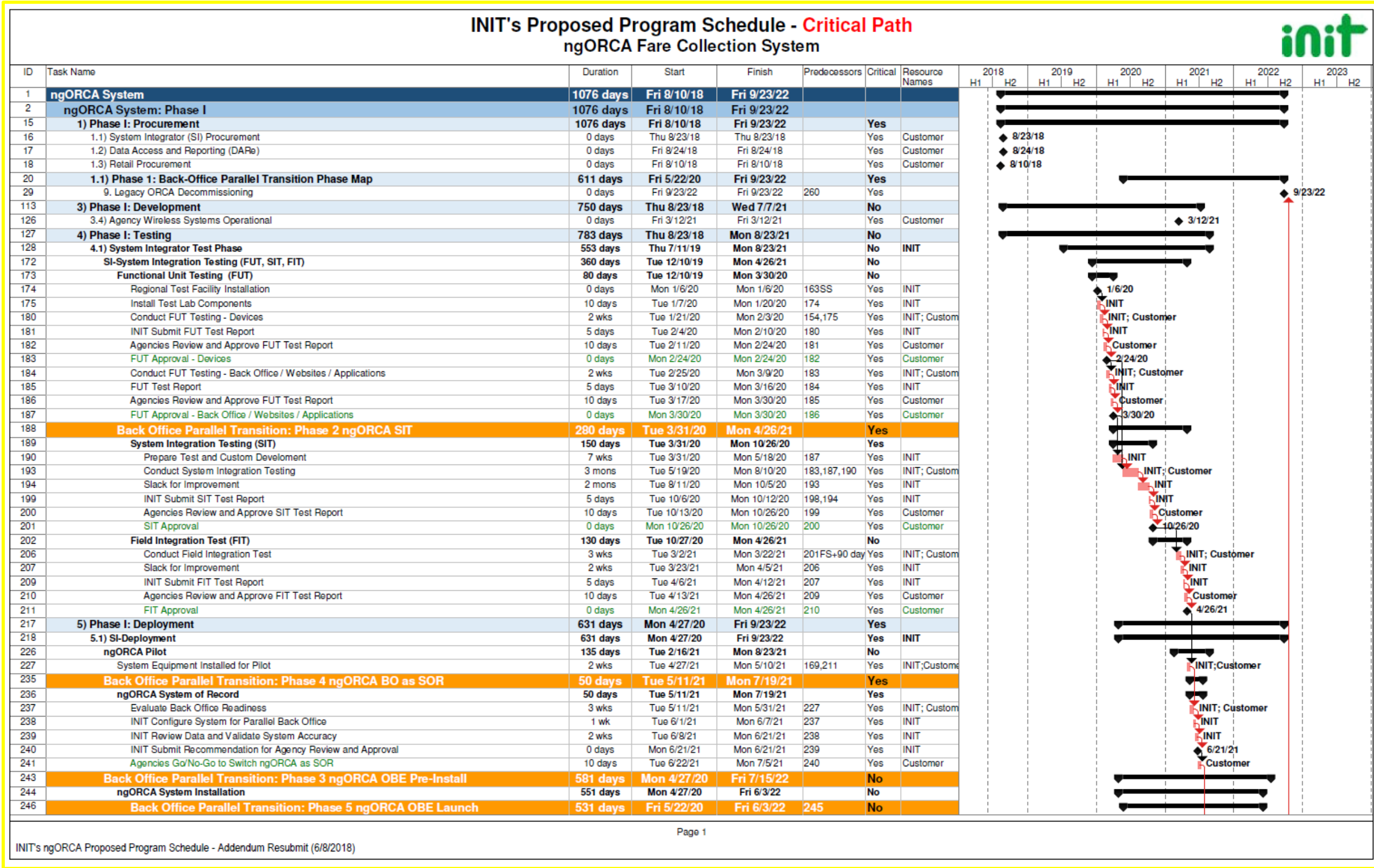


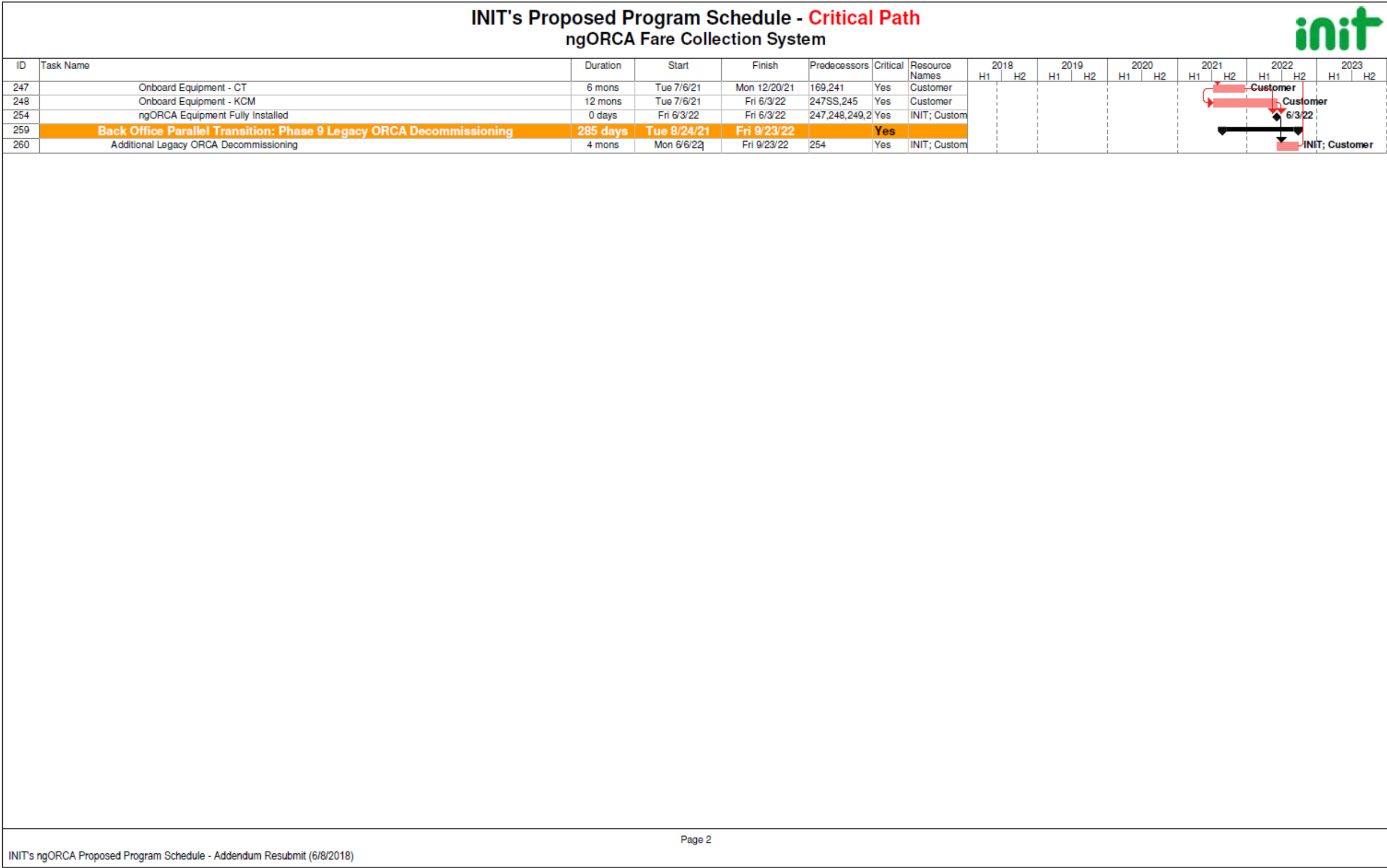






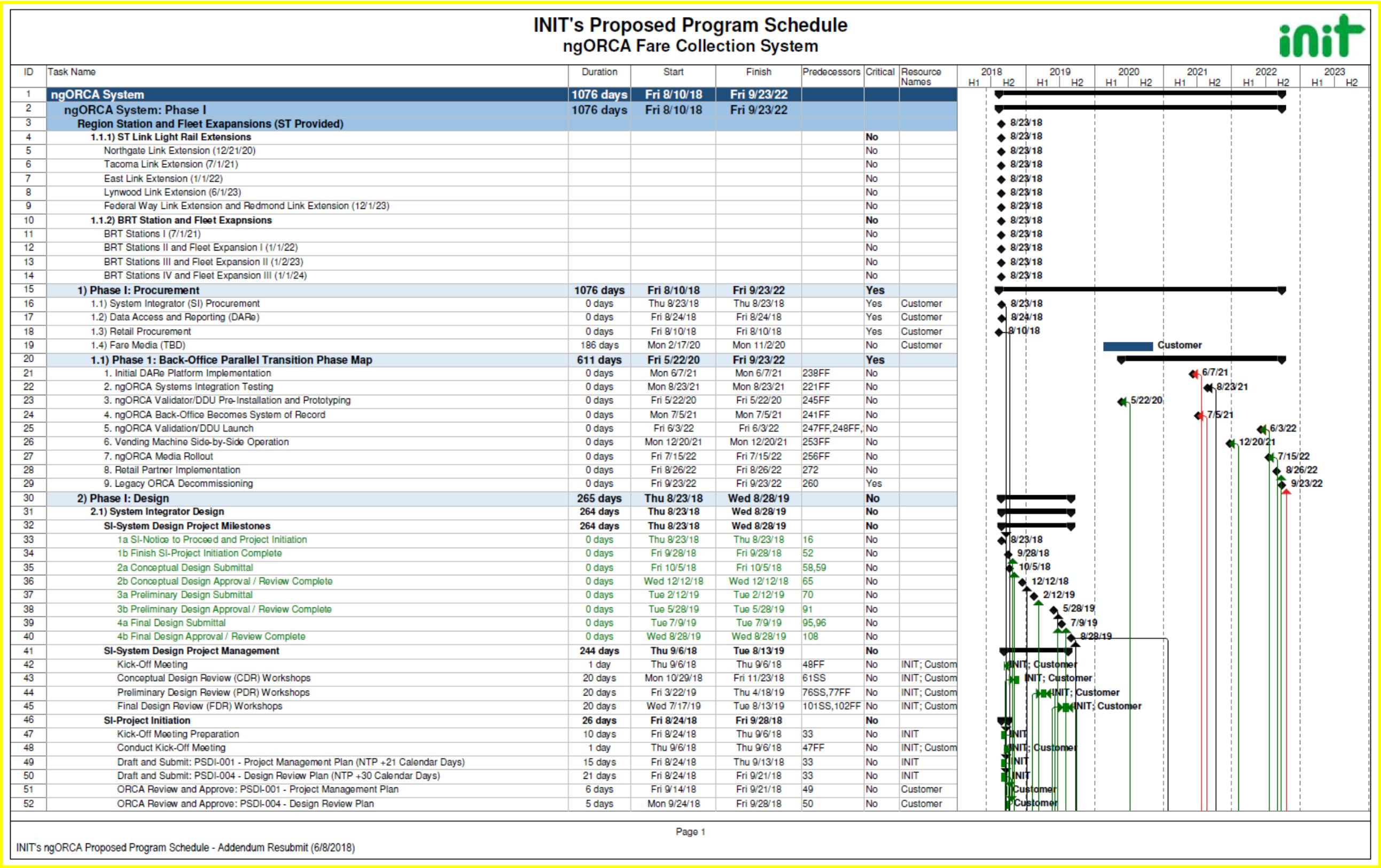
2.12.10 Critical Path Timeline

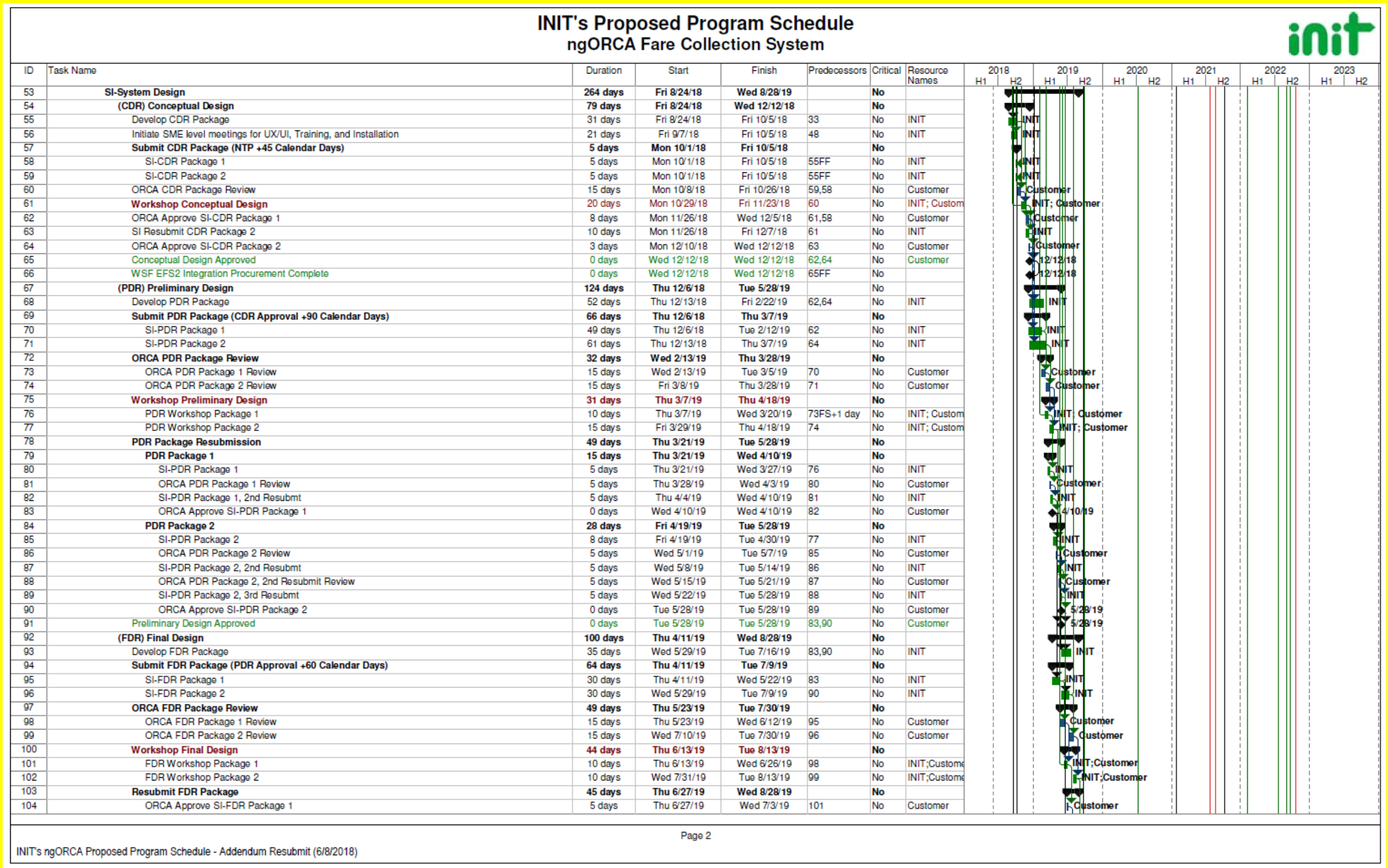


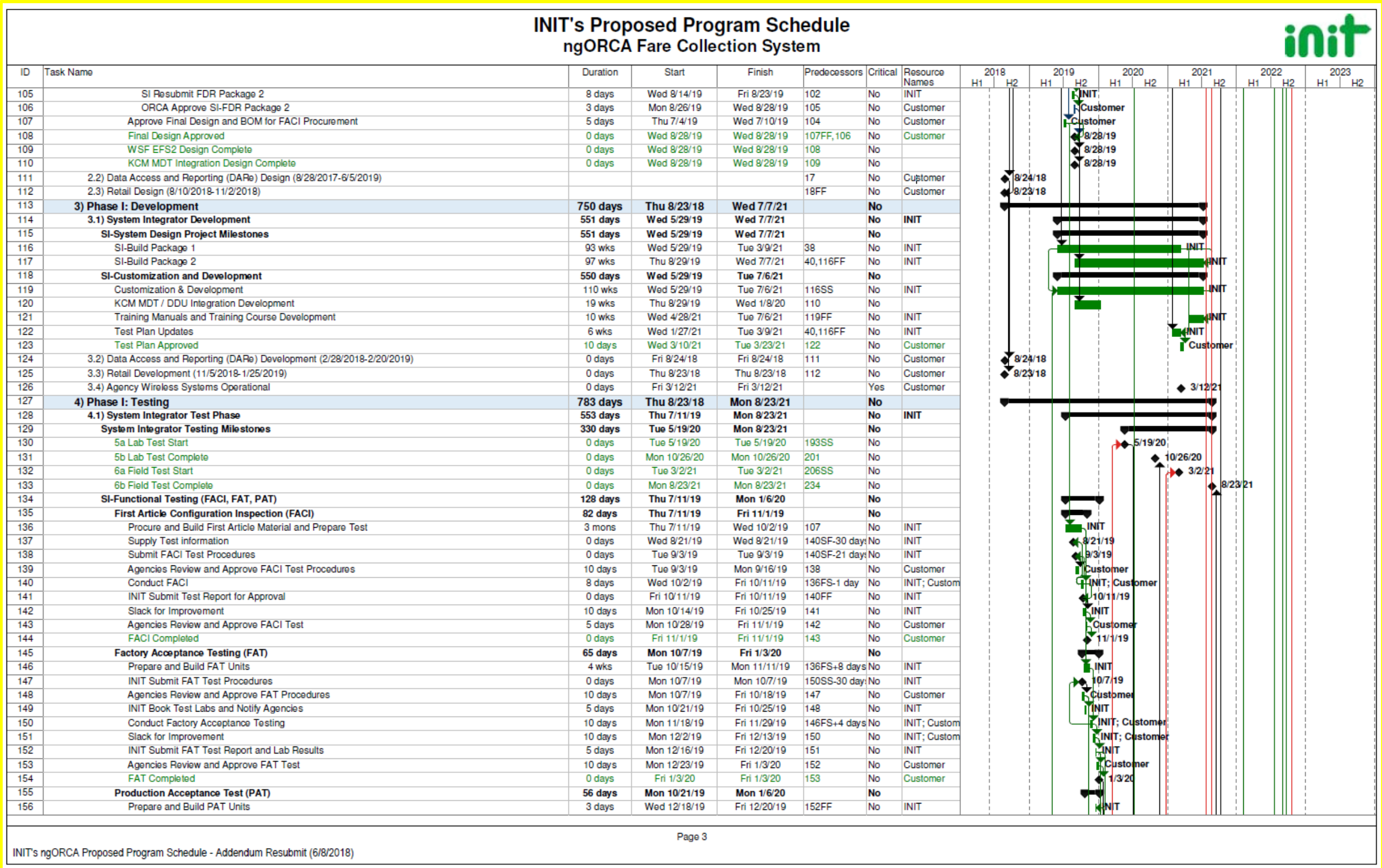


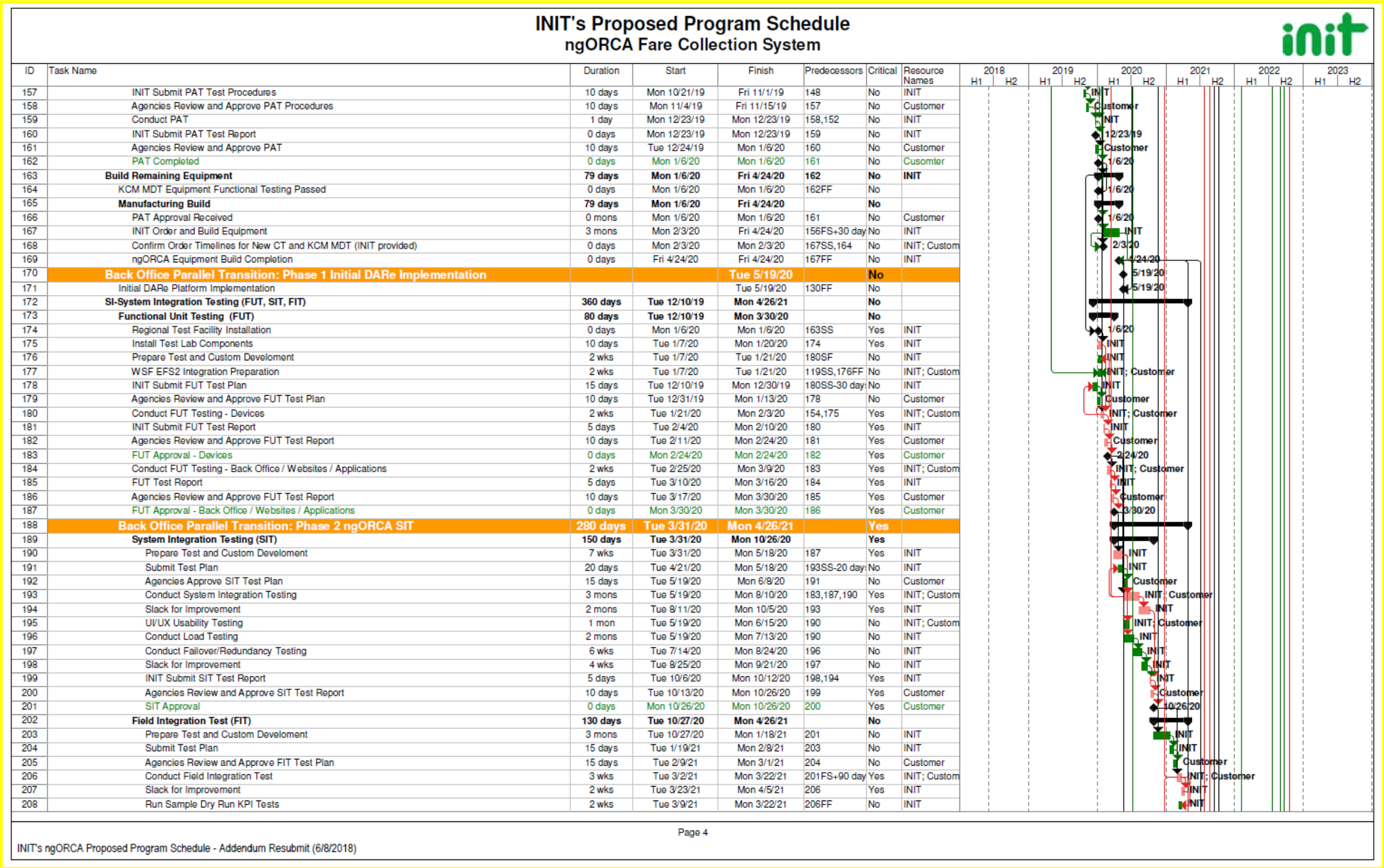


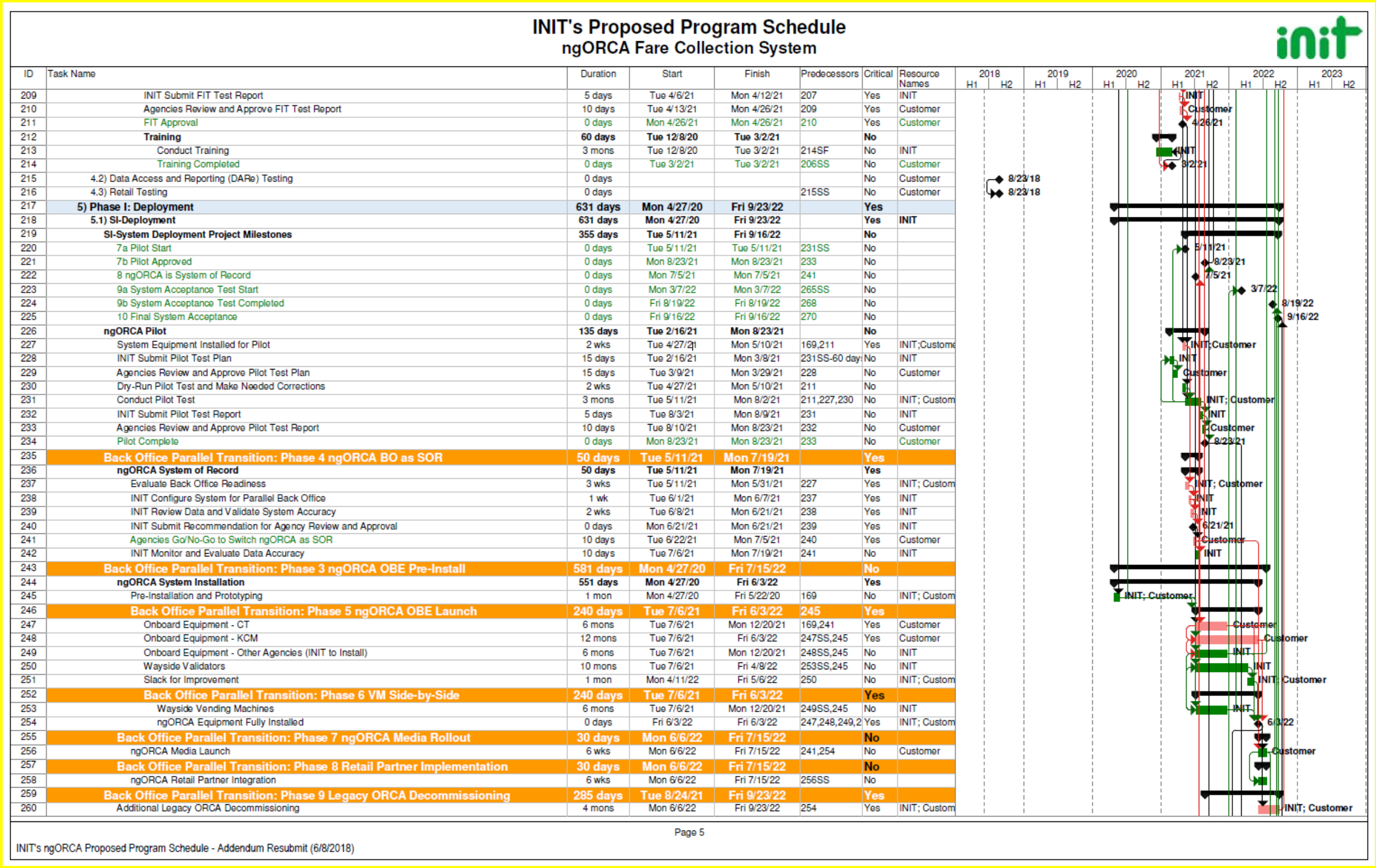
2.12.11 Detailed Timeline

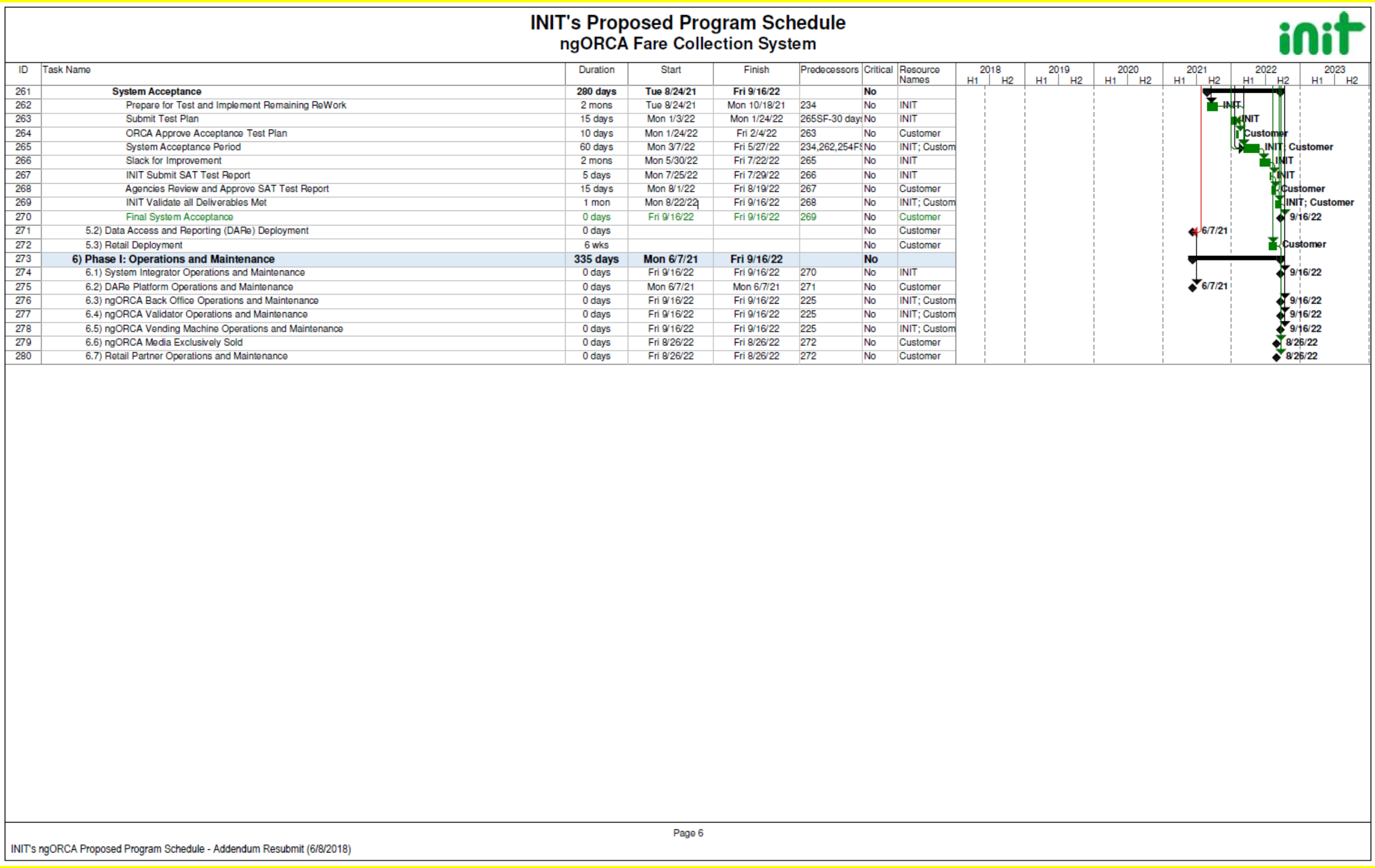














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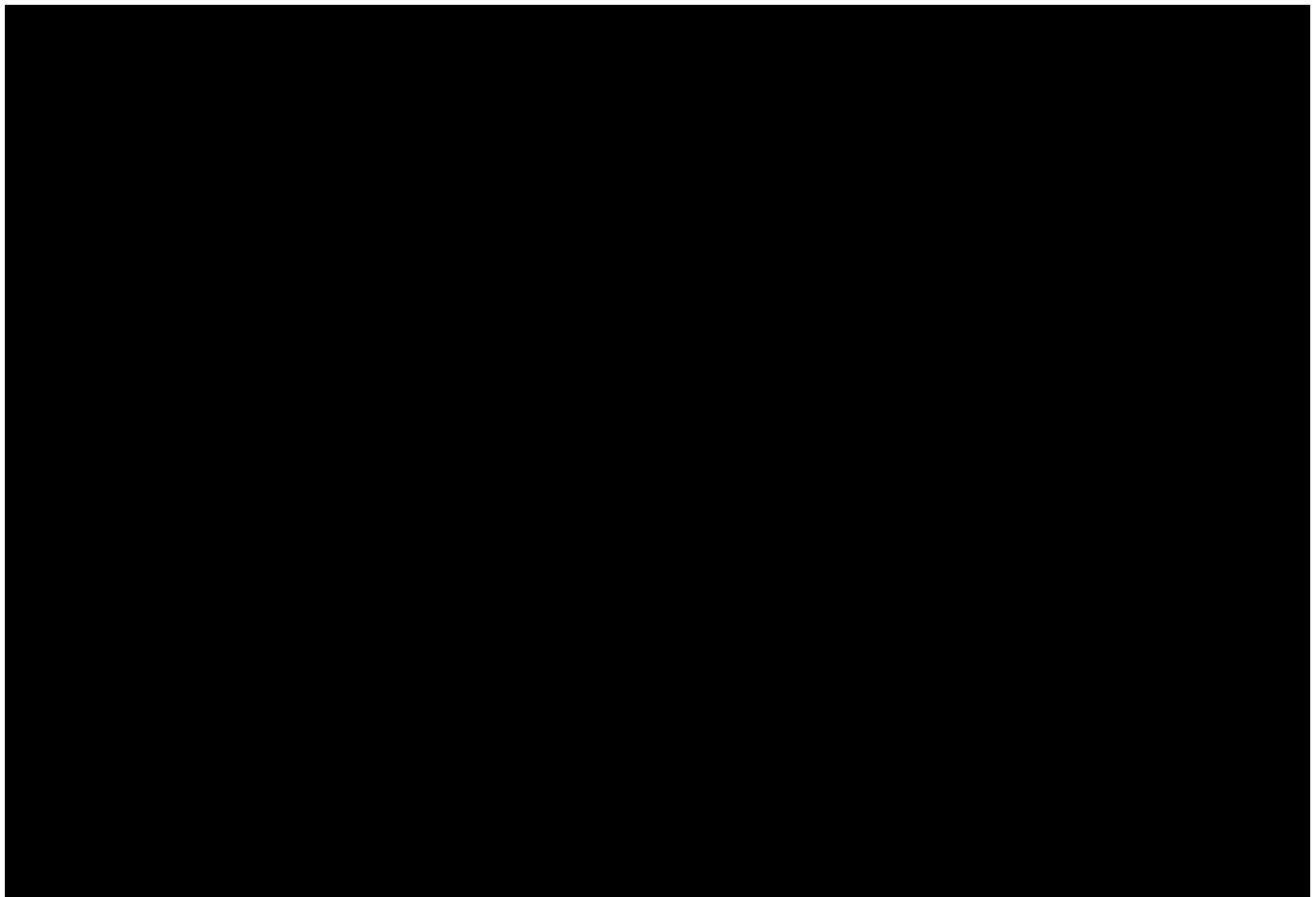
2.13 INIT's Performance Guaranty

INIT proposes the following solution to performance risk security:

- For the period from Notice to Proceed until Final System Acceptance INIT will provide a Performance Bond equal to 100% of the contract value. This will provide Sound Transit the financial security of a third-party surety supporting the completion of the project. The costs for the performance bond are priced as a separate line item in the pricing sheet.
- Once the system is in Maintenance and Operations phase INIT would propose service level agreements that would give credits to Sound Transit for any missed performance levels. These credits would be a financial penalty to INIT, hence the incentive to deliver services at agreed upon levels.

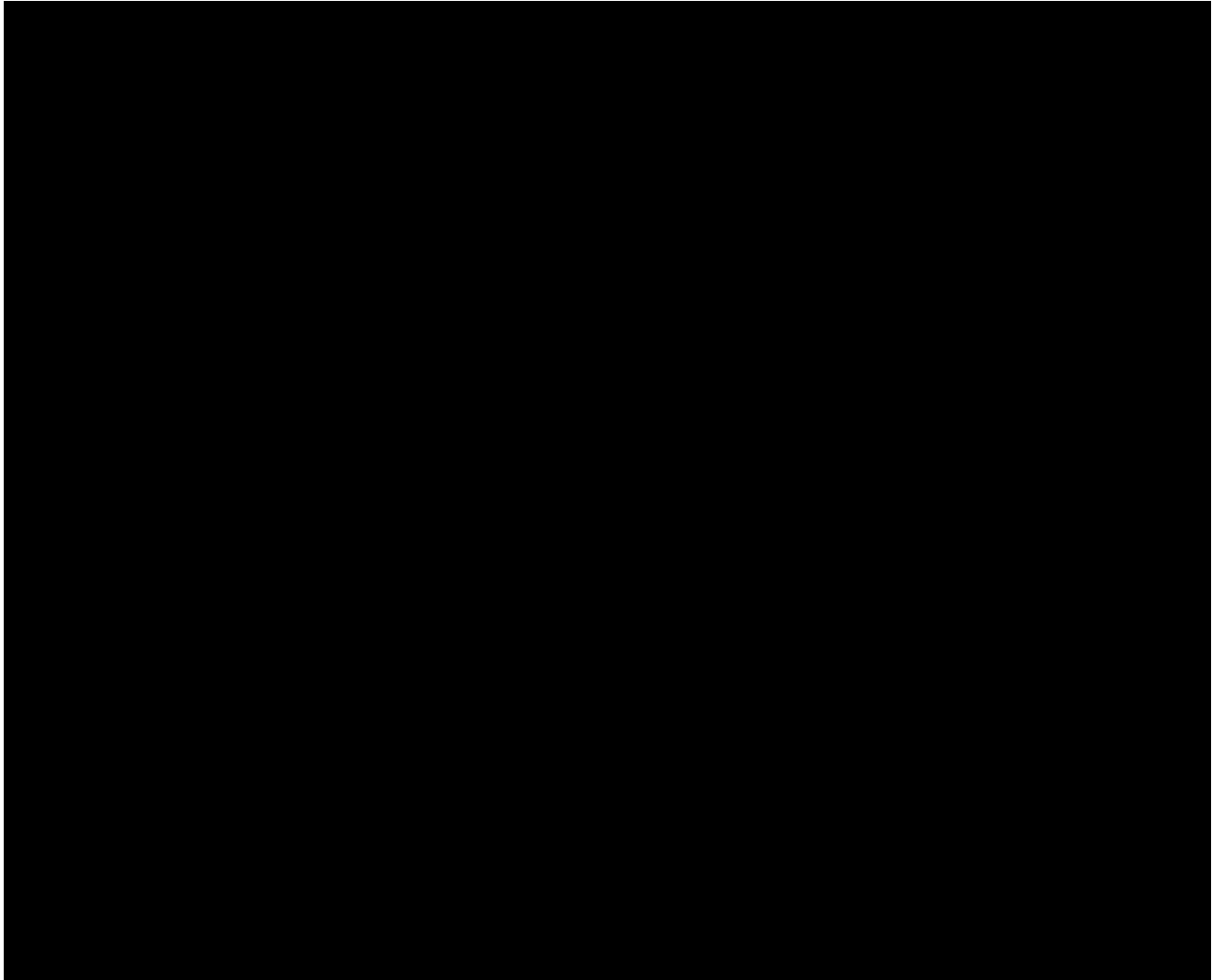
INIT is open to discuss any alternatives to this approach.

2.14 INIT's Partnership with ROOT for Effective Operation and Maintenance





Seattle Resources/Groups	Chesapeake Resources/Group	Karlsruhe Resources/Group
Escalation	Monitoring and Reporting	



2.14.2 Services for Successful Operation and Maintenance

2.14.2.1 Operations & Maintenance Model (12 years)

One of INIT's most valued system characteristics is its reliability and ease of maintenance, monitored and managed by a team of experienced professionals in their required field(s). As is the case with the INIT hardware currently supplied to some of the ORCA Agencies, all equipment proposed for ngORCA is designed to be hot swappable. This is true of our field equipment—validators and terminals—and portions of our central IT systems such as hard drives, power supplies and redundant infrastructure items.

The ngORCA System is comprised of system equipment and applications, each to be managed and maintained in accordance with the system design and conformance requirements. The customer interface components associated with the client-side equipment will be managed by the Agencies for first line maintenance while INIT will take over any second line maintenance as well as system component repair or replacement.

In addition to the front-end applications is INIT's centralized system comprised of robust server and network infrastructures collectively referred to as the 'Back Office' (BO). Once these BO applications and infrastructure are configured and deployed, they will require ongoing support, monitoring, and periodic updates to ensure efficient system operations for the duration of the Agreement. INIT will support this environment so that the regional teams can fulfill their obligations to support ngORCA.

As part of the Operation and Maintenance (O&M) obligation INIT, as the System Integrator, will support the Agencies Regional ORCA Operating Team (ROOT) for the full duration of the 12-year O&M Agreement term, starting at conclusion of the one-year Warranty term, in the following areas:

- COTS and custom software maintenance
- Maintenance of SI-provided system components
- Regional systems local test facility hosting and maintenance
- Develop Fraud Controls
- Disaster Recovery Plan and Implementation
- Website hosting
- Back office system hosting + HW maintenance
- Maintain compliance with ISMS prescribed controls
- Operating Systems related to the above

All hardware is designed to be securely mounted but with the right keys and tools, they may be replaced in a few moments. Once replaced, they boot immediately, auto configure and are back in operation within minutes of being exchanged. In the unique case of the TVMs where Sound Transit is taking the lead (per the RFP), INIT will train the appropriate personnel in how to open the device and replace the components within. This is a fast and relatively straightforward task, as our TVMs were built to be easily maintained with swappable components.

All servers are monitored by MOBILEguard which monitors each process providing restarts and error notifications even by email as appropriate. Beyond this we have our MOBILEsymon (system

monitor) application which supervises all reports from each MOBILEguard instance and each of the devices in the system whether fixed or mobile.

In addition, system reporting tools provide dashboard views of overall system performance and service issues. Finally, for the central system a full disaster recovery site is supplied as defined in chapter 2.14.2.5.8.

Service and maintainability is more than just hardware and software. It is about people. We feel that our track record of providing personal service-proven support on our other fare collection and CAD/AVL projects has shown our commitment to ensuring that any disruption to service is mitigated and managed as early and efficiently as possible. We look forward to detailed conversations about integrating our capabilities with that of ROOT, looking for long term support that is both effective and efficient.

2.14.2.2 Warranty (1 year)

INIT seeks to provide high-quality services to support ORCA in the operation of INIT's Intelligent Transportation System implementations. Following system acceptance, the ngORCA system will undergo a one (1) year Warranty term. During this term INIT warrants the repair and replacement of the affected SI-provided hardware, software, and labor associated.

Note that the warranty and maintenance service requirements of RFP SOW sections such as 8.2, 8.7 and 8.8 will be fulfilled. The following is supplemental information. For the avoidance of doubt, the requirements of the RFP SOW sections supersede.

The consistent maintainability of the INIT system for the Agencies assumes they are able to promptly notify INIT of failures in system components through the use of the INIT support line, Returned Material Authorization (RMA) form or the INIT on-line problem reporting system. As part of notifying INIT of a concern regarding any of the hardware or software, the Agency in-turn providing accurate information and details of system conditions surrounding the failure, as well as details of the failure and any error messages noted will greatly help support our efforts to minimize disruption to patrons and ensure no revenue impact.

Once a problem is properly logged with INIT and determined to be covered under the warranty or maintenance agreement, it is INIT's responsibility to respond to problem reports in a manner determined by the system impact and assigned problem priority.

INIT Onsite support will be provided as requested in the RFP. For issues where INIT onsite is not required agency staff will provide 1st line maintenance and INIT will provide 2nd line maintenance for hard and software issues.

INIT's Software Warranty will include the following key activities:

- Error analysis and repair of reproducible problems through a VPN data connection
- Includes version updates of existing system features, error correction, and assistance with temporary corrective actions, for reproducible errors
- INIT Support Line available 24 hours, 7 days per week

INIT's Hardware Warranty will include the following key activities:

- Includes parts repair of defective hardware supplied by INIT as part of this project
- The customer is responsible for all labor to troubleshoot and remove faulty equipment
- Replacement equipment will be obtained from the customer's on-site Spare Parts Inventory
- Defective equipment will be returned to INIT for repair. INIT will send a repaired or replacement unit to replenish the customer's Spare Parts Inventory. INIT pays for shipping both ways.

INIT seeks to provide high-quality services to support the ORCA agencies in the operations of INIT's Fare Collection System implementation.

A warranty or maintenance information package will be delivered at the start of warranty and maintenance with current support contact information including phone numbers, on-line support system information including user manual and pre-structured problem report forms.

2.14.2.2.1 Problem Reporting

The platform to report problems and Incidents is the Asset Management Application (AIM). All issues are logged and managed in the AIM. The AIM consists of the Jira application, the plugins "RIADA insight asset management" and "Discover". NgORCA/ ROOT will have real time access to the current status of every item logged.

Once a problem is properly logged with INIT, the support staff will respond in a manner determined by system impact and assigned problem priority. Issues can also be reported via the toll-free support line or by email. Following is a screenshot of a dashboard to show just an example of the powerful tools available.

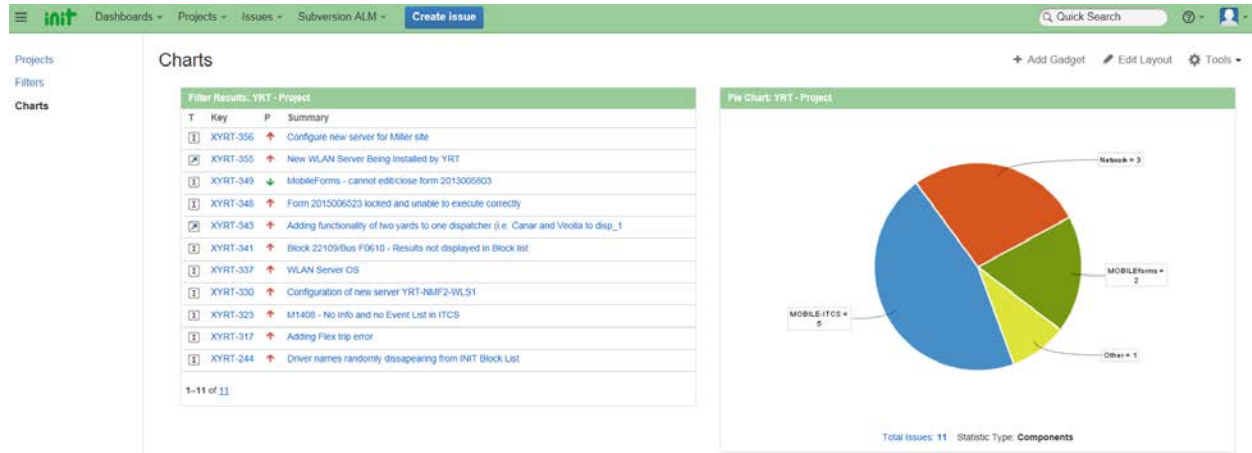


Figure 2-11: Sample Dashboard

2.14.2.2.2 Problem Classifications

Problems and errors are prioritized according to the architecture of the system and based on their system impact. The following classifications and categories are a draft.

As requested in the RFP, INIT will submit a customized software maintenance plan for ngORCA/ROOT to review and approve.

Note that the classifications do not attempt to include all possible examples of problems.

2.14.2.2.2.1 Category A: Central or Vehicle Real-time System Error

2.14.2.2.2.1.1 Category A1: Total System Error or Severe Impact on Online/Real-Time System

Failures causing loss of entire system functionality or loss of critical features, including the following examples:

- Servers/system down
- Communication servers down
- All workstations inoperable
- Critical software error in all vehicles (e.g. all customer displays on validators show wrong information)

2.14.2.2.2.1.2 Category A2: Severe System Error

Failures which cause loss of redundancy of real-time systems or cause significant impact to operations, including the following examples:

- Communication available with limited vehicles only
- Several workstations fail to work completely
- Wi-Fi system down

2.14.2.2.2.1.3 Category A3: Impact on System

Errors with workarounds, with impact on real-time operations which do not prevent use of the system, including the following examples:

- One display in back office system GUI not working
- Mouse cursor flickering on screen
- Logos on icons have disappeared
- One Wi-Fi access point not working
- Software error in one or a limited amount of vehicles
- Critical software error or a limited number of vehicles, minor software error in all vehicles

2.14.2.2.2.1.4 Category A4: Watch Status

INIT assigns this error category to an error notification in case it is difficult or impossible to reproduce the error. The error has no immediate impact on the system. The ORCA agencies will be informed that an error notification has been assigned watch status. Watch status errors will be reviewed periodically to assess the need to remain on the open list.

In case the error occurs again, it will be assigned to the appropriate error category based on the then current evaluation; for example:

- User could not zoom in on map display, but after zooming out, it is working again

2.14.2.2.2.2 Category B: Central Offline System Error

2.14.2.2.2.2.1 B1: Major Operational Problems

Major errors in data generation or provision with significant impact on system; for example:

- Reporting and analytics offline
- Data could not be imported due to consistency errors. Data could not be imported due to format errors in interface files

2.14.2.2.2.2.2 B2: Minor Operational Problems

Minor errors in data provision, in operational data provision or reports; for example:

- Single report with inaccurate data
- Statistical reports cannot be initiated
- Data is not available for statistics

2.14.2.2.2.3 Category C: Mobile / Wayside / Hardware Systems

Individual vehicle equipment or ticket vending machine errors. Hardware equipment errors are resolved by the provision of spare parts; for example:

- Hardware defect in a proximity reader

2.14.2.2.3 Problem Response and Support

INIT Onsite support will be provided as requested in the RFP. For issues where INIT onsite is not required **agency** staff will provide 1st line maintenance and INIT will provide 2nd line maintenance for hard and software issues.

Agency personnel will receive extensive 1st line maintenance training provided by INIT.

In addition to the support presence provided by the Lead Engineer, the Agencies / ROOT will be provided with technical support to for the general use and operation of the software via telephone throughout the warranty and maintenance terms. Telephone support will be provided by during normal business hours (PST) Monday through Friday, excluding holidays.

For purposes of reporting, INIT will provide INIT service desk **access** to the Agencies to make INIT aware of any software defects or malfunctions, and system outages, 24 hours a day, seven (7) days a week.

2.14.2.2.3.1 Response Times

INIT will react and respond within the timeframes defined in the RFP. As requested in the RFP, INIT will submit a customized software maintenance plan for ngORCA/ROOT to review and approve. The plan will include response times for various categories (see draft in section 2.14.2.2.2).

The workflow for the assignments of classification and priorities as well as escalation procedures will be agreed upon in the software maintenance plan.

2.14.2.2.3.2 Third Party Hardware & Software

INIT's proposal includes warranty and support services from 3rd party hardware and software manufacturers and vendors such as hosting providers. INIT serves as the primary support holder and thus any maintenance and support issues with the warranty provider are handled by INIT who will engage and include ngORCA/ROOT personnel if necessary or generally wanted by ngORCA.

2.14.2.3 System Hosting: Back Office, Regional Test Facility, and Websites (14 years)

INIT's provision of the ngORCA system back office (including ngORCA websites) requires that hosting of the production and redundant systems as well as the ORCA Regional Test Facility occur as part of the system implementation as well as through the duration of the warranty and System Hosting support phases of the contract. The Warranty term is one (1) year while the System Hosting support term is 14 years.

The back-office hosting infrastructure as defined in Section 6 of the SOW will be managed and maintained through the one (1) year Warranty term and the 14-year System Hosting Support Agreement. As part of that, the System Hosting Support processes will address the back-office operations hosting that deals with disk storage space, access and connectivity, and necessary disaster recovery / redundancy practices.

The website hosting will include those elements required in Section 5 of the SOW; specifically designed to account for scalable storage space, system access, and the appropriate connectivity for the system website's operation. While not inherently the same, INIT will manage and maintain the Websites as part of its duties related to the back-office requirements.

2.14.2.4 Systems and Operations Maintenance (12 years)

INIT will undertake the duties necessary to perform back office operations and support under the System Operations and Maintenance agreement for the specified term of 12 years. This term will begin upon conclusion of the ngORCA one-year Warranty period.

The ngORCA system is comprised of multiple back office systems and environments as well as third party and external integrations. As such, INIT will deploy its world-class System Operations team to champion the day-to-day management of the information security related functions including **proactively** analyzing and managing information generated from the centralized logging system, file integrity management system, ensuring backups, handling events generated by various system monitoring applications. The INIT System Operations team will also provide **proactive** monitoring of the overall ngORCA environmental health daily and taking required actions to ensure integrity of the expected performance metrics are adhered to.

During the terms of the agreement, INIT shall be responsible for the following activities:

- Monitoring system performance and health;
- Ensuring timely and accurate processing of transactions;
- Overseeing operation of all back-office support systems (e.g., CRM, Financial Management, etc.);
- Overseeing website operation;
- Overseeing mobile apps operations;
- Maintaining system configuration (making configuration changes upon approval);
- Testing and deployment of website and configuration changes;
- Supporting report updates and ad-hoc data requests; and
- Providing reports that confirm KPIs have been met.

Systems monitoring, management and reporting are critical to operational efficiency and application service delivery. INIT will as part of the system implementation, design and developed the MOBILEsymon dashboard and MOBILEguard service monitor applications to monitor all ngORCA system devices.

The resources assigned to carry out the work associated with the back-office operations will have experience and background as an IT professional required to function as a systems engineer overseeing and coordinating all back-office operations. The systems engineer shall oversee all aspects of service delivery and specifically address the following:

- Design and deliver support and service solutions in line with agency requirements and industry best practice;
- Ensure operational procedures and practices are well defined, documented and understood by the agencies and support personnel;
- Ensure support teams are skilled, trained and developed to enable them to deliver high quality service and support;
- Work closely with the Customer Support Services and Technical Support Services Managers to ensure support teams understand the scope of the project and support requirements and are able to meet these requirements within the expected performance criteria and KPIs;
- Be responsible for customer escalations and act as a point of escalation both in and out of hours as required;

- Directly manage local third-party IT service providers to ensure timely delivery of quality work;
- Monitor the effectiveness of the team against SLA/KPI's, driving through change as needed to deliver continual service improvement;
- Review monthly service performance and KPI reports with agencies to ensure services are delivered within expected levels and discuss opportunities for improvement;
- Participate as a member of the failure review board (FRB) where deficiencies are reviewed; and
- Identify opportunities for efficiency, cost reduction and continuous improvement.

The accuracy of the database is maintained by INIT's MOBILEvario relational database model. This model organizes data into multiple tables where each record is identified by a unique key. Relationships between tables are established by referencing the unique keys of the two tables.

In addition to the above, INIT will carry out the following operational activities, proactively taking corrective action as needed without active reporting either by or from the Region, performed on a regular basis as follows:

Daily Operations

- Proactively review and take action to resolve warnings and error messages for service startup errors, application or database errors, CPU usage, memory usage, hard drive space availability and unauthorized application installs
- Proactively review and take action to resolve warnings and error messages for invalid logons and unauthorized users creating, opening or deleting files,
- Proactively review and take action to resolve warnings and error messages for hardware and network failures
- Proactively review and take action to resolve warnings and error messages for mobile apps
- Proactively review and take action to resolve warnings and error messages for web/database/application logs
- Proactively run backup of system and data files and verify successful completion, and take steps for issue resolution

Weekly Operations

- Archive audit logs to a media device with specified retention periods

- Verify successful backup of system and data files
- Download current Anti-Virus signature files
- Scan all hard-drives using current Anti-Virus signature files
- Compare system configuration files, application executables and database stored procedures against the baseline to determine if changes were made
- Run file system integrity diagnostics to detect system problems
- Synchronize system clock with master server
- Check system services for any unnecessary services running

Monthly Operations

- Perform security review of technology checklists for any changes, run security checks and record finding in Security Review Log
- Run backup of system and data files and verify successful completion
- Run tool to verify user account configuration; verify and/or delete dormant accounts with agency approval

Quarterly Operations

- Restore backup files to a test system to verify procedures and files
- Check vendor websites such as Microsoft, HP, Oracle, McAfee Antivirus, etc. for new vulnerability information including patches and hotfixes, and schedule patch/hotfix updates as required

Annual Operations

- Review appropriate Security Technical Implementation Guidelines which are updated annually
- Perform Security Review and review monthly and quarterly security review files and participate in assessments as needed

2.14.2.4.1 Information Security Management System (ISMS) Compliance

The Information Security Management System (ISMS) is to be designed in such a way that the necessary governance for the applications, modules, and information that comprise the fare collection systems (Legacy ORCA and next gen ORCA), including the applicable information security controls will use ISO 27002:2013 as a baseline.

To ensure compliance, the ngORCA System solution that INIT supports (including its design, support, and operation activities) will be validated against the requirements to ensure with the applicable technical and administrative security controls, as determined by the ISMS conformance guidelines are in place.

Due to the duration of the O&M obligation and software maintenance agreement, it is likely that the security standards may be updated. As part of this agreement, INIT will ensure the requisite controls, technical revisions, and processes are updated or revised according to the procedures outlined in the Change Control Plan.

2.14.2.5 Software Maintenance (11 years)

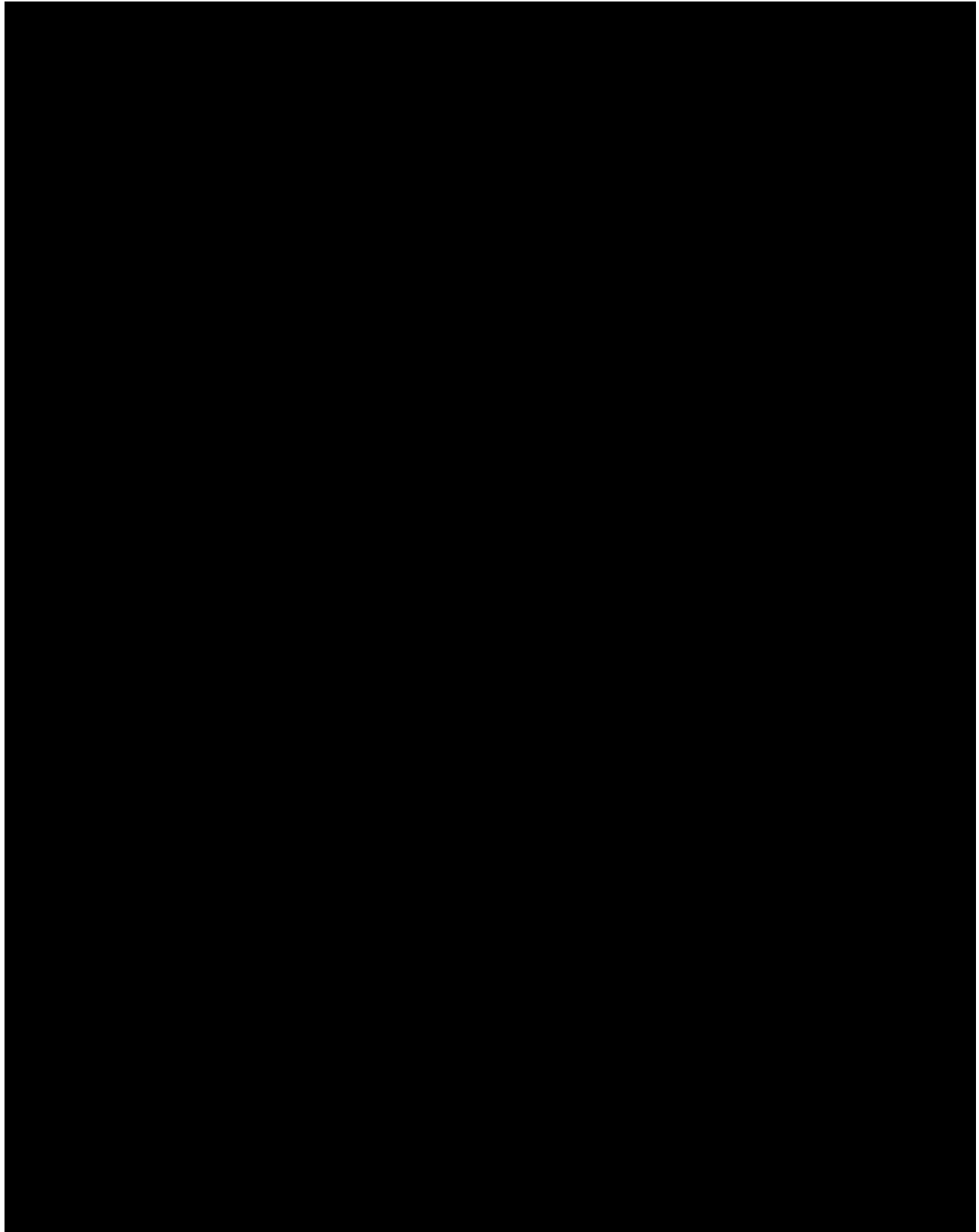
2.14.2.5.1 General Capabilities

As part of INIT's obligations related to the back-office operations, periodic changes to the software may be required to address routine maintenance functions such as security patches and firmware updates or deployment of third-party integration updates (e.g. Sage or Salesforce). Additionally, throughout the duration of the software maintenance agreement it is anticipated that major technology changes will also occur affecting software compatibility or system security and fraud control. To address future needs or broader changes in technology, the Agencies may want to pursue system enhancements or upgrades. Change is an inevitable aspect of the system's operation but all maintenance and change activities must be managed in a clear, transparent, and structured way.

In order to address the multitude of preventative and standard maintenance needs of the software and the changes that will occur as part of that, INIT will submit a Software Maintenance Plan which will include the processes and procedures for each element. The plan will include those items noted above as well as deployment operations, risk management, production monitoring and roll-back planning. INIT will collaboratively develop the Software Maintenance Plan with ROOT – the figure below provides a sample outline.



Software Maintenance Plan [Sample Outline]



2.14.2.5.2 Communications, Response and Resolution

Software maintenance related communications, response and resolution will be addressed in the Software Maintenance Plan. INIT complies with the Agencies capabilities specified in the Scope of Work – including:

- Telephone technical support
- 24 x 7 hotline to report system failures (with response times of less than 30 minutes)
- Onsite support, if required, within 24 hours
- hours status reporting if a repair takes longer than 4 hours

2.14.2.5.3 Software Change Management

INIT will jointly develop and implement a rigorous software change management plan involving

- Analysis and reporting of the required complexity and risks of the proposed change
- Joint change management meetings
- 3-month changes look-ahead
- Comprehensive release management involving extensive testing (including regression testing) on all environments
- Maintaining effective change documentation (including Software Delivery Notes (SDNs) and a Change Log)

INIT will update any required technical documentation impacted by a change. The following samples show the proposed software change management plan outline, and INIT's Software Delivery Note (SDN), which is provided to the customer for a signed approval prior to any software change.

5	Software Change Management	10
5.1	Complexity of a Proposed Change.....	10
5.1.1	Initial Analysis.....	10
5.1.2	Preliminary Analysis	10
5.1.3	Report of Findings	10
5.1.4	Approve / Reject Decision	10
5.2	Change Management Meetings	10
5.2.1	3-Month Configuration & Change Schedule.....	10
5.3	Release Management	10
5.3.1	Versioning.....	10
5.3.2	Testing.....	10
5.3.3	Software Delivery Form.....	11
5.3.4	Deployment	11
5.3.5	Change Documentation.....	11
5.3.6	Change Log.....	11
5.3.7	Technical Documentation Updates	12

Sample software change management plan outline

Software Delivery Note

Form



Project name	Sample	Project no.	
Delivery scheduled for (Date, Time)		Delivery carried out (Date, Time)	
Processed by (full name)		INIT deputy (full name)	Michael Wirthmann
Customer contact:			
Delivery on customer's test system		Delivery on the productive system	

Content of this delivery (specific components, modules, parameters, etc.)				
Item	Customer Report no.	Process / Product INIT standard and Individual Licences (item no. from Axapta)	Version no.	Description
				1.

Activities carried out on the system (date/time; processes, databases, servers, etc.)

Test

Production

Consequences for this system *without* these changes

Expected impact on system (downtime, data, etc.)

Breaking Changes

Expected impact on user and/or driver

Expected impact on passengers

Risk assessment (worst case scenario: failure of ...; impact upon...)

Test log (attach or enter details here)

Withdrawal strategy in case of severe problems (backup required? – DB, files, etc.)

Necessary preparations / subsequent works by the customer

System monitoring after activation (customer confirms changes; test of system; logging)

Information / Participants
(Who was informed, who was involved e.g. customer, INIT, Hotline, branch office, project contact, PM, etc.)

Checklist

Developer / delivering person present >= 1 week: ☐

Controlling (#ACTR) and Shipping (#PISH) informed of invoice required
(copy of this delivery paper): ☐

Urgent action, i.e. delivery paper was completed afterwards: ☐

Open issues (issue entirely occurred with this delivery)

Checked & approved by team manager (date, time, signature/token)

Checked & approved by customer (use as required – date, time, signature)

Software change Software Delivery Note

2.14.2.5.4 Software Enhancements

INIT will participate in a responsive manner towards software enhancements. This process will involve the submission of the desired functionality or enhancement, a technical and cost impact analysis by INIT, and a response submittal outlining the scope and costs by INIT. If ROOT decides to proceed with the enhancement, then the Software Change Management process would be followed.

2.14.2.5.5 Field Equipment Maintenance

Once the system has been accepted by the Agencies, first line maintenance will be performed by the Agencies whereas second line maintenance repair will be undertaken by either INIT or the relevant OEM. INIT will manage and maintain spares and stock inventory to facilitate the first line maintenance efforts of each Agency.

To facilitate the purchase of new or additional equipment and spares, INIT will provide a spares price and consumables list for Agency reference and ordering as well as comment on any special tools or items needed to facilitate the repair efforts.

As serviceability and maintainability are essential to a successful handover of operational functions, INIT will ensure the Agencies receive the appropriate training and information necessary. Additionally, INIT staff and engineers will be available as needed to support first line maintenance efforts should further issues arise which limit the Agencies ability to perform the required functions or steps.

To clarify the RFP's section 8.12.2.5 titled Incident Response Times, INIT expects that vending machine first level maintenance will be handled **Sound Transit** as described in section 8.1. INIT will train Sound Transit and provide spares of internal components which are designed to be field serviceable, including swapping at the installed locations. Second line maintenance will be provided by INIT

2.14.2.5.6 Agency Test Facility

As part of the obligations associated with test of the ngORCA system during the project delivery, INIT will stand up a regional test environment for access by Agency and INIT staff. The detail of this solution is more fully covered in Section 2.7.2.4.3 above.

INIT will continue to host and maintain this test facility for the duration of the agreed terms and in accordance with the contract's requirements. The purpose of the test facility is an integral part of the overall test and deployment strategy and as such will be managed and maintained in a similar fashion as the production system (e.g. software patches, compatibility, etc.).

2.14.2.5.7 Fraud Controls

During the ngORCA project deployment INIT will design and develop as part of the system implementation various controls and detection methods for dealing with fraud. When the system moves into the operations phase, INIT will undertake those same strategies and methods as part of the system operations and service management functions.

At a high level, some of the fraud detection methods INIT has proposed are as follows:

- Data analytics to support fraud detection based on ridership data
- Agency-configurable velocity checks
- Detection of potentially cloned cards

Since the ngORCA implementation will be comprised of multiple third parties, the individual vendors will be empowered to access and develop against INIT's RESTFUL (Representational State Transfer) Application Programming Interfaces (APIs). These APIs provide an open architecture that supports vendor independence and streamlines integration with other payment channels. To ensure fraud prevention, INIT will implement strong security controls to restrict fraudulent use of the APIs and authenticate all users in accordance with the ISMS.

In addition to the detection of fraud and the API security levels in place, ngORCA will be built with fraud prevention strategies as follows:

- Configurable passback protection by fare media type, fare product, agency, mode, and passenger type capable of being set differently for different device types
- Upper ride limits on period passes generating automated alerts, with the configurable auto-blocking
- Configurable "floor limit" for stored value (which can be set to zero or a negative value) with configurable auto-blocking
- Ability to set credentials and transit accounts to "observation mode"
- Blocking credentials and transit accounts automatically and manually (including on a bulk basis)
- Master Status Lists (MSLs) including 'hot' (negative) lists of blocked cards which are regularly updated to field devices for offline validation provisions
- Writing limited information to cards for offline validation purposes

The ngORCA system will be an account-based, online system. However, at times network disruption may occur (wireless coverage issues or other forms of communications interruptions) requiring it function in an off-line mode as summarily noted in the bullet points above.

To ensure fraud protection during off-line operations, the system will provide a both hot list (aka. deny list) at set intervals (configurable to a period of time, for example 5 min. intervals) so as to enable validators to detect 'hotlisted' cards and deny fare validation where appropriate.

2.14.2.5.8 Disaster Recovery

INIT's proposed back office solution for ngORCA addresses both disaster avoidance and disaster recovery; the proposed solution favors disaster avoidance strategies to limit the impact of failure and need for disaster recovery and prepares for disaster recovery.

The primary business continuity objectives of ngORCA are covered by the multi-data center, active/active infrastructure. The active/active datacenter strategy allows for smooth failovers allowing operations to transparently move workloads between geographically separate infrastructures. Further, through the use of load balancing inbound connections, disruptions in a single datacenter have little to no impact to the continued operation of the system.

While disaster avoidance works against disaster recovery in some respects, INIT will deploy a more specific disaster recovery solution which ensures out-of-region data backup in a separate hardware environment. This third, out-of-region site does not support continual or failover operations due to distance and latency, but is intended specifically as a data-backup only solution. Business continuity, disaster avoidance, disaster recovery and backup solutions are documented in the Disaster Recovery Plan. The plan also addresses other ISO guidance regarding business continuity including risk assessments and business impact analysis.

2.14.2.5.9 Performance Measurement

2.14.2.5.10 General Capabilities

System performance is measured on multiple levels, from the network level over the different processes and services running in the back office up to the client applications and devices. The data that can be reported on and how it is being collected depends on the system and the way the performance is measured. Based on the captured data, different KPIs are calculated and reported at the end of the month to provide an overview of the systems performance in general and to ensure that the agreed level of operational performance is met.

INIT will provide a Performance Maintenance Plan which will identify the methods and approach to tracking and reporting the KPIs. Where possible the approach taken will seek to be automated whether related to the capture or reporting of the data elements.

2.14.2.5.11 Key Performance Indicators

As part of the Software Maintenance Plan INIT will include the means and measurements required to develop the requisite quantifiable measurements of performance to assess INIT's operation of the system.

The plan will outline the data source, calculations, and output for the following KPIs: Frontend Device Reliability, Frontend Device and Back Office Application Accuracy, Back Office Application Availability, Operating Performance Requirements, and Incident Response Times.

2.14.2.5.12 Failure Review Board

As far as possible, INIT will provide a list of expected exceptions and events for each device or application for classification as Chargeable or Non-Chargeable Failures. The classification will be used to determine during performance reporting if a failure will be chargeable against one or more of the KPIs.

To determine the severity of an exception or event and to classify it as chargeable or non-chargeable failure, a Failure Review Board (FRB) will be established as specified. From INIT's side the FRB members will include the System Engineer, the Project Manager (when in the project executing phase), and the Customer Support Service Manager (when in operations and maintenance). In the event an escalation is required, the INIT Project Sponsor will participate

Newly classified chargeable and non-chargeable failures will be added to the list maintained in the back-office system to be used during the next calculation of the KPIs.

2.14.2.5.13 Performance Reporting

As noted above, INIT will collate and summarize the data applicable to the KPI metrics and perform the measurement calculations on a monthly calendar cycle for the duration of the operation agreements. This will result in a detailed report of overall system performance and result in a "meets or fails" summary of each KPI. Where possible, KPIs will be measured with automated elements of the system.

To prepare for the operational elements of the system and achieve system acceptance, the KPI metrics and reports will be exercised during the integration and acceptance testing.



Where applicable the monthly reports will provide historical data or trend analysis to provide a broader overview of overall system health at a high level.

2.14.2.5.14 Credit Assessment

As part of the operations agreement INIT will sustain the obligation to meet the requisite KPI metrics. Should there be instances where the KPI has failed then the agreed deduction to the associated payment would be reviewed and where applicable apply to the associated invoice.

2.14.2.5.15 Level of Effort to Optimize Value

We expect our Services Operations manager to be fully dedicated to the support of this system, with the support of our customer support, field tech and IT support teams. Our plan is to operate the system as efficiently and effectively as we can, bringing down the amount of support that is required – especially over time. We plan an initial team that will be available throughout this contract and are capable of providing for all required KPIs and to maintain the overall ORCA customer experience. We have found with our current fare collection systems, both in North America and worldwide, that a well-designed and well-engineered system can operate at a very high level of accuracy with a minimum level of support and maintenance. We plan to leverage and enhance this through this project with ngORCA.

2.15 INIT's Warranty

Please refer to section 2.14.2.2

2.16 INIT's Sample Disaster Recovery Plan

A sample disaster recovery plan is included as an attachment at the back of this tab in the proposal.

2.17 INIT's Commitment to the Environment

We see transit as intrinsically "green," and have aimed to make direct contributions to our community through an ongoing commitment to sustainability. INIT is a proud signatory of the APTA Sustainability Commitment and has contributed to the creation of measurable guidelines for APTA business members to achieve higher levels of sustainability. Even this proposal is printed on 30% recycled paper.

Our manufacturing facility, Superior Quality Manufacturing (SQM), recycles the lead-free solder used in making their electronic boards. Additionally, INIT's cable manufacturer, Total Quality

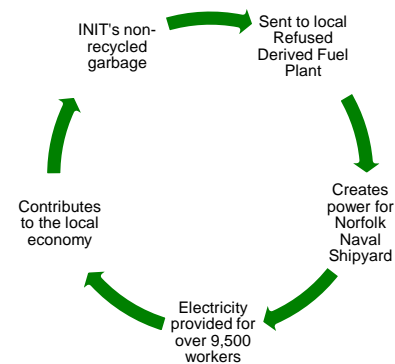
Manufacturing (TQA), recycles 100% of scrap cables through a partnership with a local cable recycler.

Simple changes in habits, like the removal of paper towels and replacement with hand dryers has made a large impact. By the first year, 593 pounds of paper towel usage was eliminated. The impact on the environment is calculated to be the equivalent of 11 trees with an estimated decrease in the company's carbon footprint of 69%.

2.18 INIT's Progressive Green Approach

INIT is a socially responsible business partner with a unique approach to fostering sustainability in our corporate and manufacturing practices.

As a zero waste to landfill company, we purchase recyclable products, reuse our shipping and manufacturing packaging, partner with an electronics recycler for repurposing manufacturing devices, and contribute all non-recyclable, non-compostable garbage to a Refuse Derived Fuel Plant (RDFP). The RDFP facility treats and burns the garbage creating electricity to power the local Norfolk Naval Shipyard, which is home to over 9,500 workers.



Extensive Experience and History of Innovation in Transit Technology

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal June 8, 2018



init

The Future of Mobility

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The sections listed below contain trade secret information that provides a business advantage to INIT over competitors. These sections are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

CONFIDENTIAL SECTIONS:

3.4 Extensive Recent Account-Based Fare Collection Projects

3.5 Customer References

3.7 INIT's Financial Performance

3.7.1 Stellar Financial History

3.7.2 A solid Financial Forecast

3.8 INIT's Recent Fare Collection Wins



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3 INIT's Extensive Experience and History of Innovation in Transit Technology

As the lead procurement agency for the Central Puget Sound Regional Fare Collection Coordination Project (ORCA), Sound Transit, is seeking an innovative Systems Integrator to collaboratively develop, build and test the best solution for the region. It is our strong belief that INIT's Electronic Fare Collection Management (MOBILE-EFM) product suite and our decades of experience as an Innovator and System Integrator in public transit will provide ORCA with the optimal technologies, processes and support services to assure the successful deployment and ongoing operations of a Next Generation Fare System for the Puget Sound region as specified in your RFP.

Having implemented more than 50 Electronic Fare Collection Systems worldwide, our system has advanced and matured based on a strong cooperation with our worldwide community of Transit Agency customers.

3.1 Multi-Agency Experience

INIT's ticketing back-end system is well fitted for environments with multiple operators and Public Transit Agencies and supports multiple fare structures/policies. For example in our ticketing project in Bavaria, where the whole county rural traffic is implemented with INIT's ticketing system, and its outstanding multi-client capabilities are heavily used by currently 10 clients/fare structures. At the beginning there was 4, now it is 10 and the number is increasing. The clients can be very different in size (OVF 800 vehicles, Krause 10 vehicles) and operational requirements (OVF more than 30 different fare structures and Krause with only 2 fare structures).

Another ticketing project with large number of fare structures and policies is VVO/Dresden (20 clients/fare structures), of very different sizes. Some of the clients are simultaneously independent clients for their own routes and contractors for the larger clients. This shows the outstanding scalability and flexibility of the MOBILEvario system.

Also our ticketing system with ECAN in Christchurch is a multi-client system (320 vehicles) with 7 different clients, all accepting the same Metrocard and getting assigned their individual revenue per week.

3.2 Why INIT

With INIT being a leading vendor of Electronic Fare Collection and Intelligent Transportation Systems (ITS), we are uniquely qualified to understand your needs across the full bandwidth of

your operations. See the figure below for a graphical view of INIT's 25 years of fare collection History.

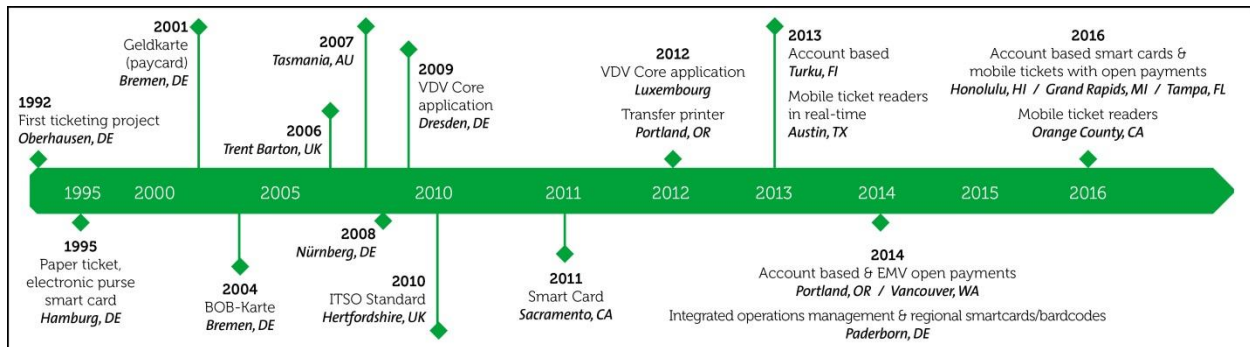


Figure 1: INIT's 25 Years of Fare Collection History

After a very thorough analysis of your RFP, we are pleased to confirm that ORCA's requirements are very similar to INIT's MOBILE-EFM Project recently implemented at TriMet in Portland, OR. Due to the similarity in scope and design of the Portland MOBILE-EFM System which features: a Multi-Agency, Account Based and Open Payments based System, Open APIs, a fully redundant back office, multiple fare product distribution channels etc., INIT can offer Sound Transit and their partner agencies a prompt and reliable implementation of the next generation ORCA (ngORCA) Regional Fare System.

The ability of INIT to deploy and grow a solid and experienced Seattle based team will be vital to the success of your project. INIT will deploy key technical and project management resources for the duration of the implementation phase of the contract to enhance the existing team already located at INIT's Seattle office. Additionally INIT is committed to provide the requisite employees and partners to fully maintain and operate the ngORCA Fare System during the operation and maintenance phases of the project.

We are excited about the prospect of working with Sound Transit and your partner agencies to collaboratively develop, build, and test the best solution for the transit agencies and their customers in the Puget Sound region. We are convinced that you will be amazed by the functionality, flexibility and reliability of our company and our best-in-class fare collection solutions and especially the outstanding team of Transit Professionals that we have assembled for this project.

3.3 INIT and Its Project Partners

3.3.1 INIT Innovations in Transportation, Inc. (INIT)

INIT was incorporated in the Commonwealth of Virginia in January of 1999 to serve the North American market, exclusively focusing on Intelligent Transportation Systems (ITS) for public transit. INIT GmbH, our sister company, was founded in 1983. Both companies are wholly owned by our parent company, INIT SE (formerly AG), which is located in Karlsruhe, Germany.

Years in Business

INIT GmbH has been in business for 34 years and INIT has been in business in North America for 18 years. The INIT SE group of companies has not changed ownership during this time, Its founders are still heavily involved in the business of providing services dedicated to public transit, giving INIT unmatched

insight into the deployment of all types of ITS projects. Founder & CEO Dr. Gottfried Greschner continues to be involved and working at INIT on a daily basis. An investment in INIT's technology is an investment in our ITS future as well as yours.



Our North American Office Locations

INIT Innovations in Transportation, Inc.'s brand new consolidated North American headquarters office is in the City of Chesapeake, Virginia. We are at the midpoint of the US Atlantic Coast, 3 ½ hours south of Washington, DC, at the mouth of the Chesapeake Bay and adjoining the cities of Norfolk and Virginia Beach.

INIT operates in a multi-purpose 67,000 square foot facility which includes dedicated areas for Software Development, Customer Support, Engineering and Sales, manufacturing, and a dedicated laboratory for testing and development.

INIT maintains Regional offices in Seattle, Toronto, New York and Tampa with personnel dedicated to providing and supporting the latest technology and a totally functionally compliant system for our clients.

INIT has formed a joint venture with the manufacturing company, Superior Quality Manufacturing (SQM). SQM will provide through-hole and wave soldering, circuit board assembly and final assembly of several of our electronic devices including but not limited to: Proximity Readers, MDT's, Ticket Vending Machines (TVMs) and on-board computer backplanes. SQM is co-located within our Chesapeake, VA headquarters.

An additional joint venture with a major cable manufacturer, Total Quality Assembly (TQA) manufactures the majority of INIT's cables, harnesses and mounting hardware equipment for our vehicle equipment installation needs. TQA is also co-located within our Chesapeake, VA headquarters.

Because both companies are subsidiaries, INIT is able to closely monitor quality and adjust production priorities in order to best meet the needs of our customers. Integrating both SQM and TQA into the INIT environment creates additional benefits for the



INIT Innovations in Transportation, Inc.

Phone (757) 413-9100

www.sales@initusa.com

www.initusa.com



ngORCA project. Additional orders, cable replacements, etc. can be quickly implemented due to the working relationship and proximity of the teams and then delivered to ORCA. Finally, by investing in these companies, INIT continues to show the commitment to supplying American Made products.

Public transportation is an indispensable part of modern society. As one of the world's leading suppliers in the area of fleet management, passenger information and electronic fare collection systems, our primary goal is to help transit authorities make public transit services more attractive, faster and more efficient.

Customers such as TriMet, Grand Rapids, CDTA, RTD- Denver, and dozens more, benefit from the fact that INIT uses innovative mobility concepts, giving these forward-thinking transit authorities a technical advantage. This may be in the form of standard off the shelf or if needed customer specific, tailor-made solutions. As a supplier of turnkey systems, INIT develops, produces, installs and maintains integrated hardware and software solutions for all key tasks required within a transit agency.



Figure 2. INIT has over 30 customers in North America and more than 400 customers worldwide

INIT is a proven, experienced and accomplished systems integrator with over 30 transit agency customers in North America. We feel that INIT is best suited to maximize ORCA's investment with minimum risk as you implement and deploy the ngORCA system.

3.3.2 Bytemark

Founded in 2011, Bytemark is an international provider of fare collection technology employing over 90 talented individuals globally, with offices located in New York, Toronto, the UK,

Australia, and India. Bytemark's core offering is a comprehensive suite of products that digitize transit passes, tickets and fare media in a variety of innovative ways. Purchase of these fare products by transit riders is simple and instantaneous by means of web-based and smartphone-based purchasing experiences. Agencies are provided with powerful fare validation solutions, and cloud-based access to a full-suite management portal to manage and report on their operation.

Bytemark products have been implemented at over 20 transit agencies in North America including New York Waterway, Toronto Transit Commission, Capital Metro Transit (Austin, TX), and King County Metro (Seattle, WA).

3.3.3 Marathon Consulting

Marathon Consulting began operations in April 2006 and was founded by four individuals with over 80 years of collective experience in the Information Technology Service Industry. Marathon now employs over seventy-five (75) Full Time Equivalents (FTEs) and has served over two hundred and fifty (250) clients. Marathon's goal is to help businesses achieve their goals through the use of technology by delivering high end software solutions.

This has put Marathon in an ideal position to assist INIT in the past, and well into the future. INIT provides both hardware and software solutions to facilitate the collection of fares for both bus and rail services and Marathon compliments this offering by delivering web based Fare Collection Web Portals. These portals are online ecommerce websites that allow the transit customers and institutions to manage their transportation cards associated with a given account. INIT selected Marathon as their partner because of their high level of experience in web technologies including: design, construction, content management, and e-commerce. Marathon also possesses a high degree of experience in back-end software engineering and data integration.

3.3.4 E-BROS

E-Bros is an international software company operating in many European countries with offices in Tampere, Finland and Kaunas, Lithuania. The key areas of their expertise are e-commerce solutions, software and mobile development. Their global success is based on building great customer relationships. They keep a close contact with clients to identify their business needs and deliver high-quality solutions that help them operate more efficiently.

3.3.5 ESP Enterprises

ESP Enterprises is the leading services company providing installation and maintenance to all Fare Collection Equipment Manufacturers and Transit Focused Electronics suppliers in North

America. ESP was formed in October of 2002. They have ongoing projects with ACS, Accenture, Avail Tech, Bytemark, Clever Devices, Conduent, Cubic Transportation Systems, Genfare, Lecip, Lilee, March Networks, Parkeon, Safety Vision, Scheidt & Bachmann, Trapeze, TSI Solutions, Vix, and Xerox and INIT.

ESP's primary goal is to supply with a labor force that's trained with skills specific to transit industry requirements and equipment. Their experience and knowledge of Mass Transit operational requirements and equipment provide foresight into the logistical and project planning requirements necessary for successful installation activities.

ESP operates under the need for scalable responses to their customers' needs and deadlines. As part of their operating philosophy we provide skilled labor and supplement as needed with local personnel who can be trained and supervised by more experienced staff. If requested by either the customer or transit authority ESP provides experienced oversight staff for a local subcontractor. This methodology allows ESP to rapidly scale their work force to meet the installation requirements of their customers and reduce related travel costs.

3.3.6 Anthro-Tech, Inc.

Anthro-Tech is a woman-owned business founded in 1997 and became a licensed Washington State Corporation in 2002. Anthro-Tech is Washington State DBE Certified. Anthro-Tech is a user-centered design consultancy focused on government agencies, nonprofits and enterprises with a social impact mission. They provide user-centered design strategy, user research, user experience design, usability testing and UX training services to organizations throughout the region and across the nation. Much of their work focuses on web sites, web & mobile applications, software systems and customer experience strategy.

Anthro-Tech proposes to provide user interface and user experience services for this contract to ensure all customer-facing interfaces are intuitive, usable, accessible and consistent across touchpoints.

3.3.7 Persistent Systems, Inc.

Persistent Systems, Inc. (PSI) is a public and global company specializing in software product and technology innovation. Established in March 1990, they have partnered closely with pioneering start-ups, innovative enterprises and the world's largest technology brands. We have utilized our fine-tuned product engineering processes to develop best-in-class solutions for customers in technology, telecommunication, life sciences, healthcare, banking, and consumer products sectors across North America, Europe, and Asia.

Persistent has 36 offices in 12 countries. Their USA headquarters (Persistent Systems, Inc.) is located in Santa Clara, CA and their India Headquarters (Persistent Systems Limited) is located in Pune, MH. We also have other locations in Mexico, France, Canada, Germany Netherlands, Japan, Malaysia, Australia and Singapore.

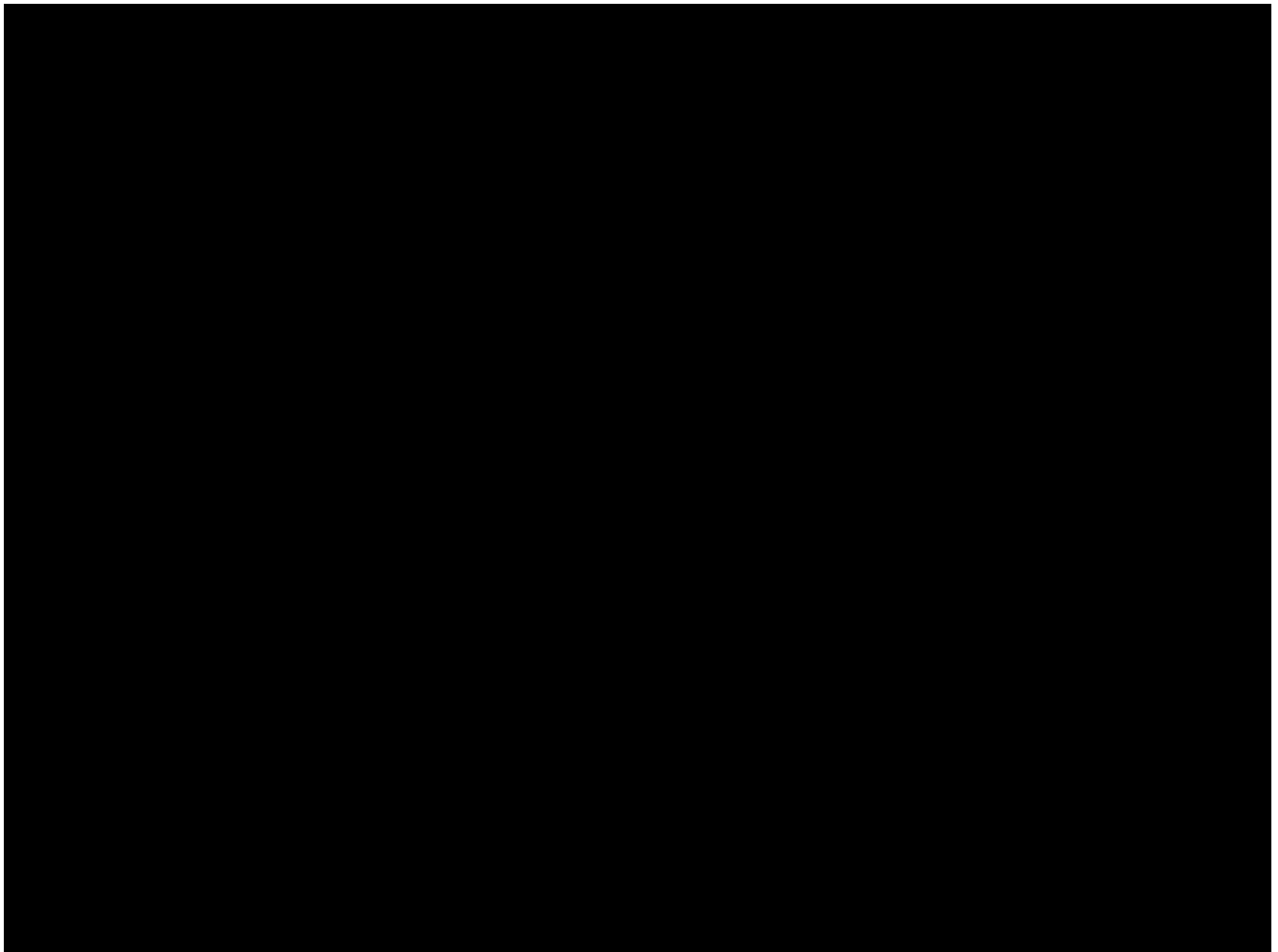
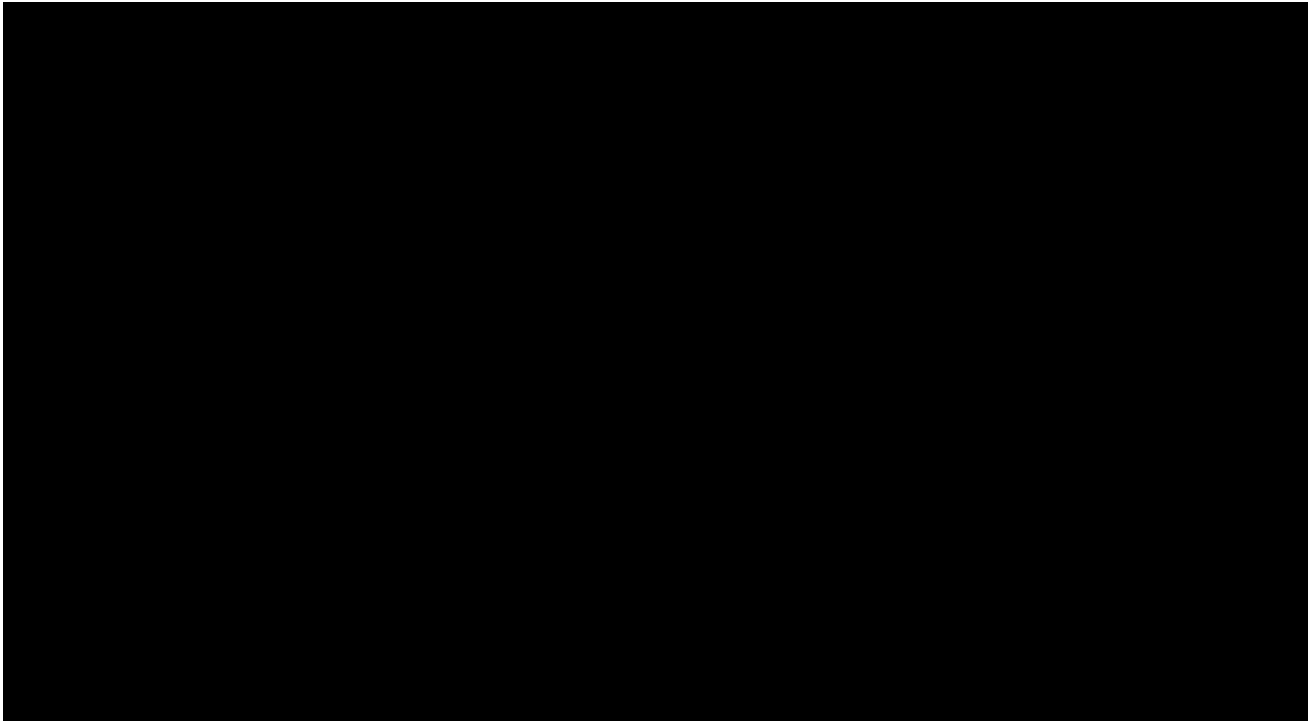
INIT will be using Persistent Systems, Inc. as our Salesforce Integrator as they have demonstrated that they are uniquely qualified.

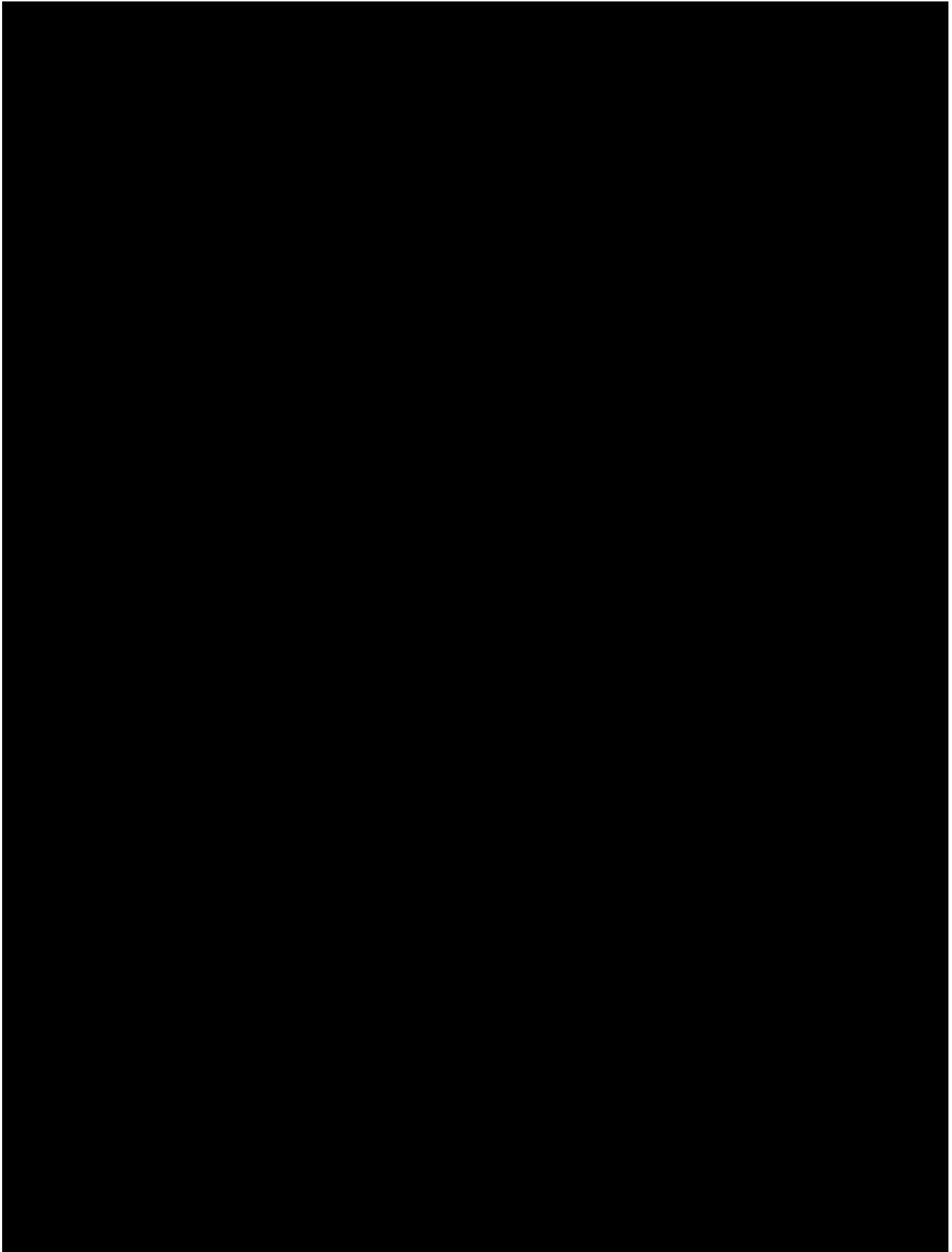
3.3.8 Babinec Consulting LLC

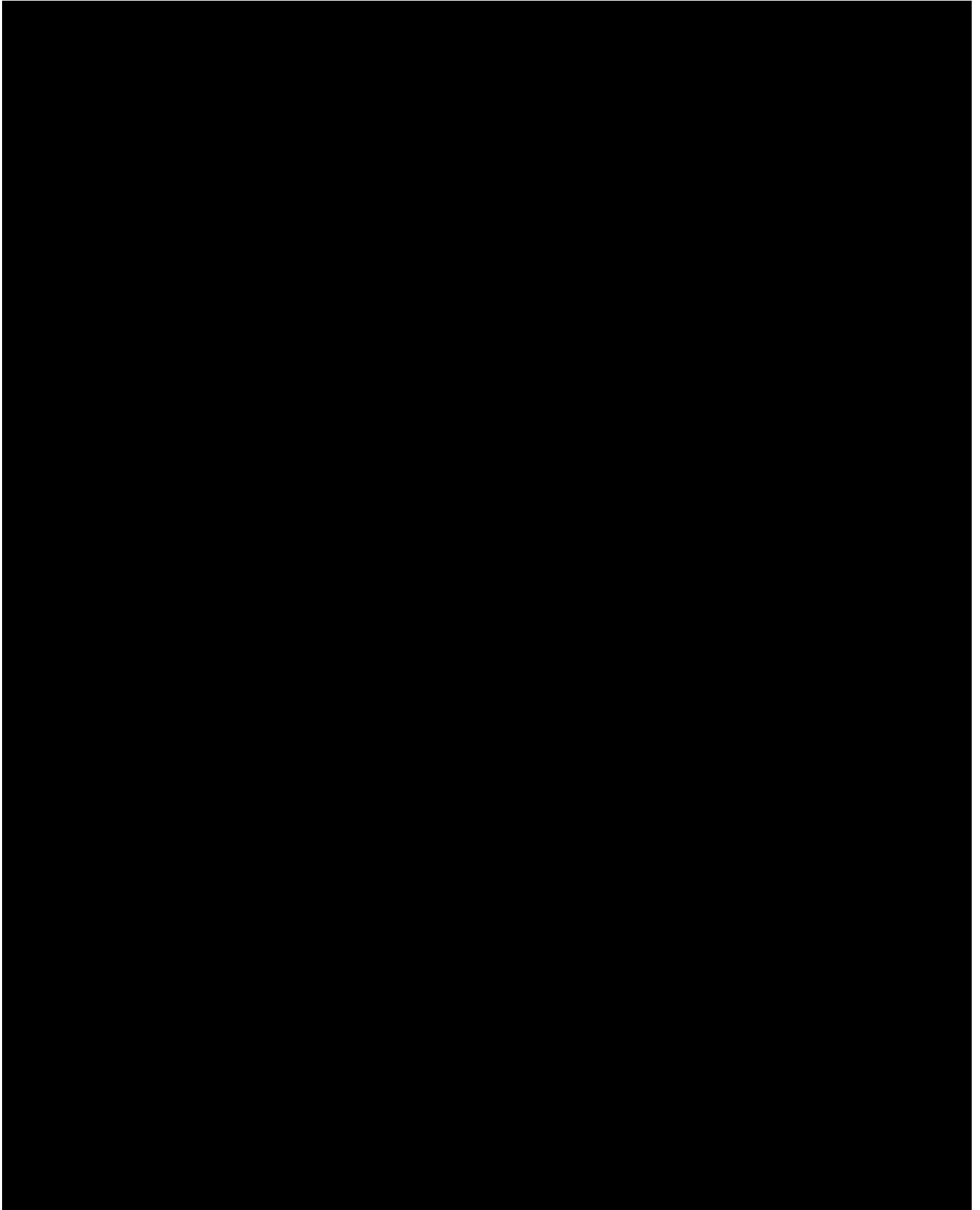
Babinec Consulting LLC is a 100% woman-owned business and certified DBE (WA State/Federal Programs) formed in March 2017 by two sisters, Kati Babinec, PMP, and Lisa Babinec, PhD, CMP, both subject matter experts with a combined 40+ years of experience in their complimentary fields. They provide exceptional business management consulting services that enhance and advance our client's business success. They also help our clients realize their full potential and achieve mutually agreed upon desired outcomes. They dedicate ourselves to providing subject matter expertise and timely, superior end products that fulfill the client's stated goals. Babinec Consulting LLC devotes itself to offering innovative thinking, nurturing genuine partnerships, and championing the beliefs that accuracy, reliability, honesty, and trustworthiness will never be obsolete. Finally, their combined areas of expertise include the following:

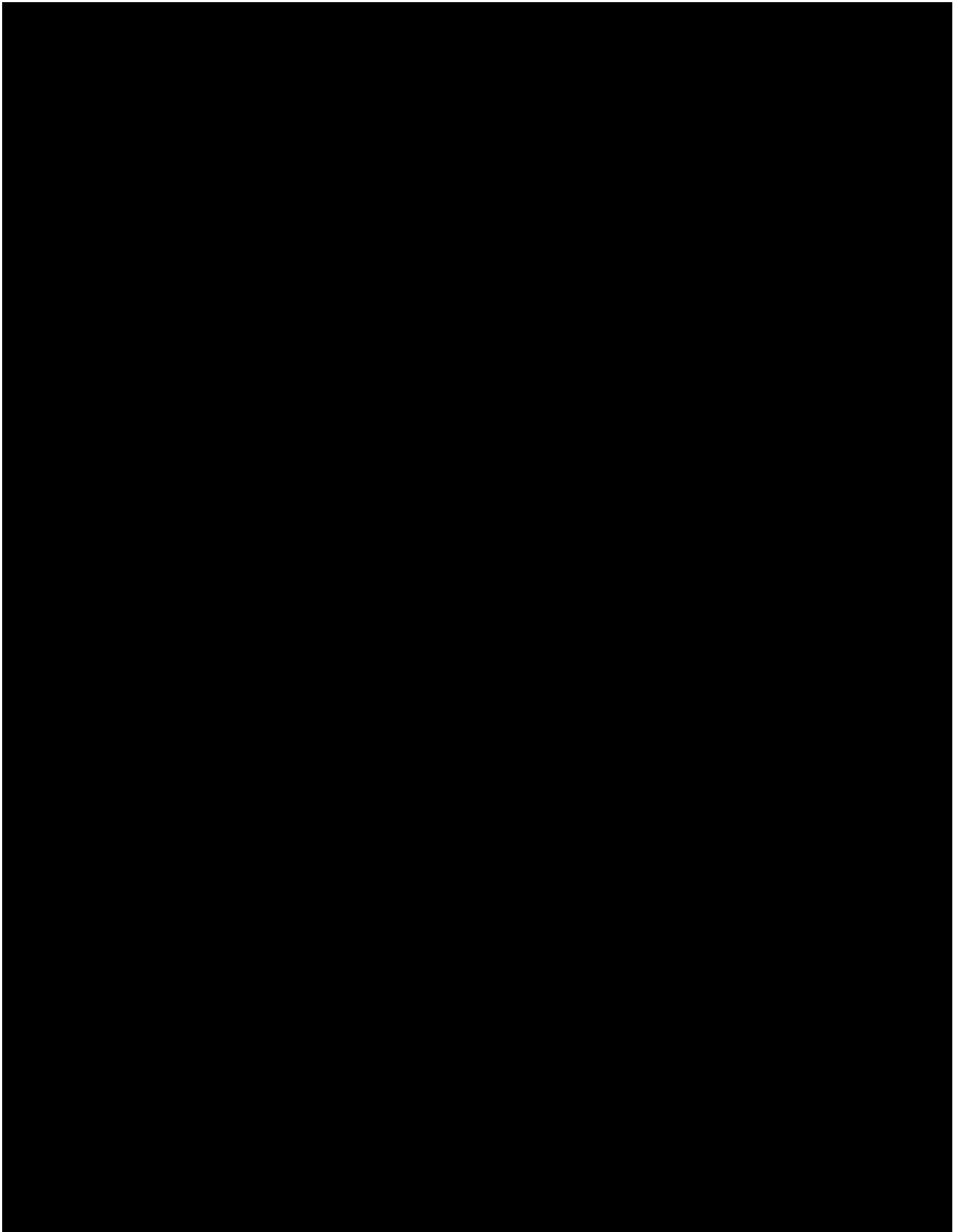
- Technical Writing & Editing, Medical Writing & Editing, Copywriting, Copyediting, Substantive Editing, Line Editing, Proofreading, Instructional & Online Curriculum Design, Peer Review, Quality Assessment (Curriculum & Publishing), Grant Writing/Editing (CDC, NIH, etc.), and Educational Marketing
- Contract Risk Analysis & Management
- Contract Drafting, Review, & Negotiation
- Training: Risk Management, Trade Compliance, Contract Negotiation, Specialized Curriculum (project management fundamentals, ethics, process development, Train the Trainers, etc.)
- Strategic Planning & Procurement, Cradle-to-Grave RFX, RFX Planning, Scope Development, Implementation, Analysis, & Supplier Selection

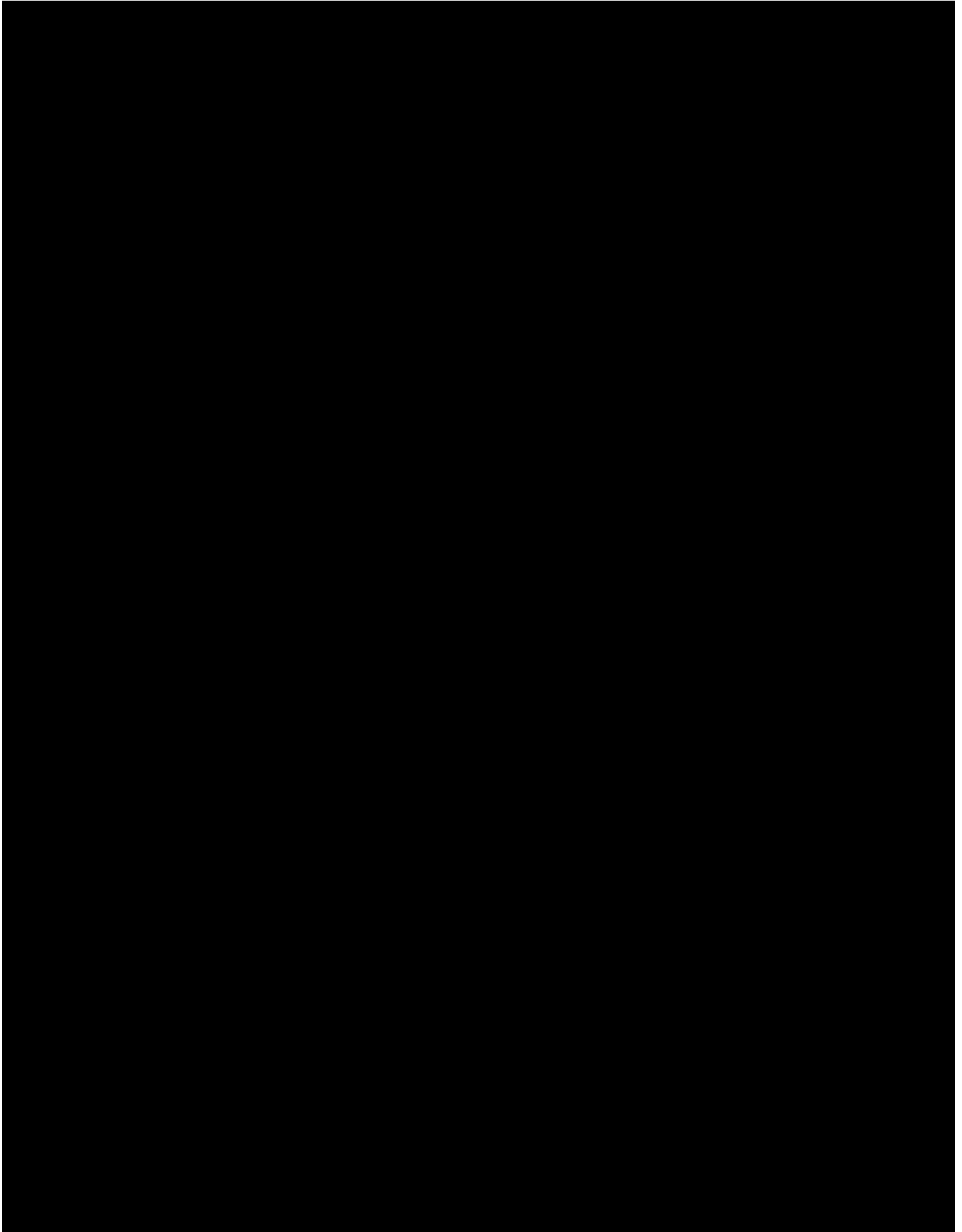
3.4 Extensive Recent Account-Based Fare Collection Projects

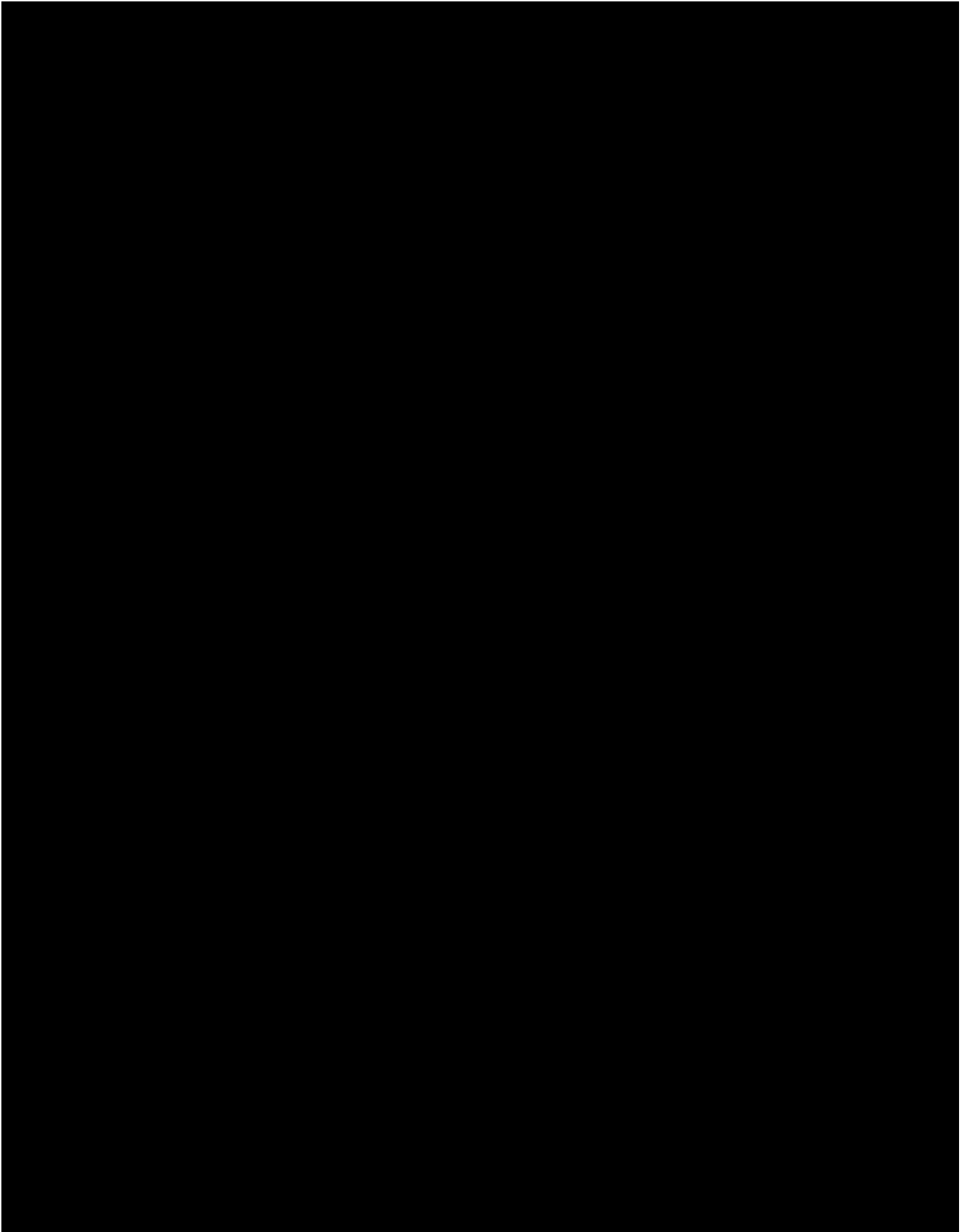


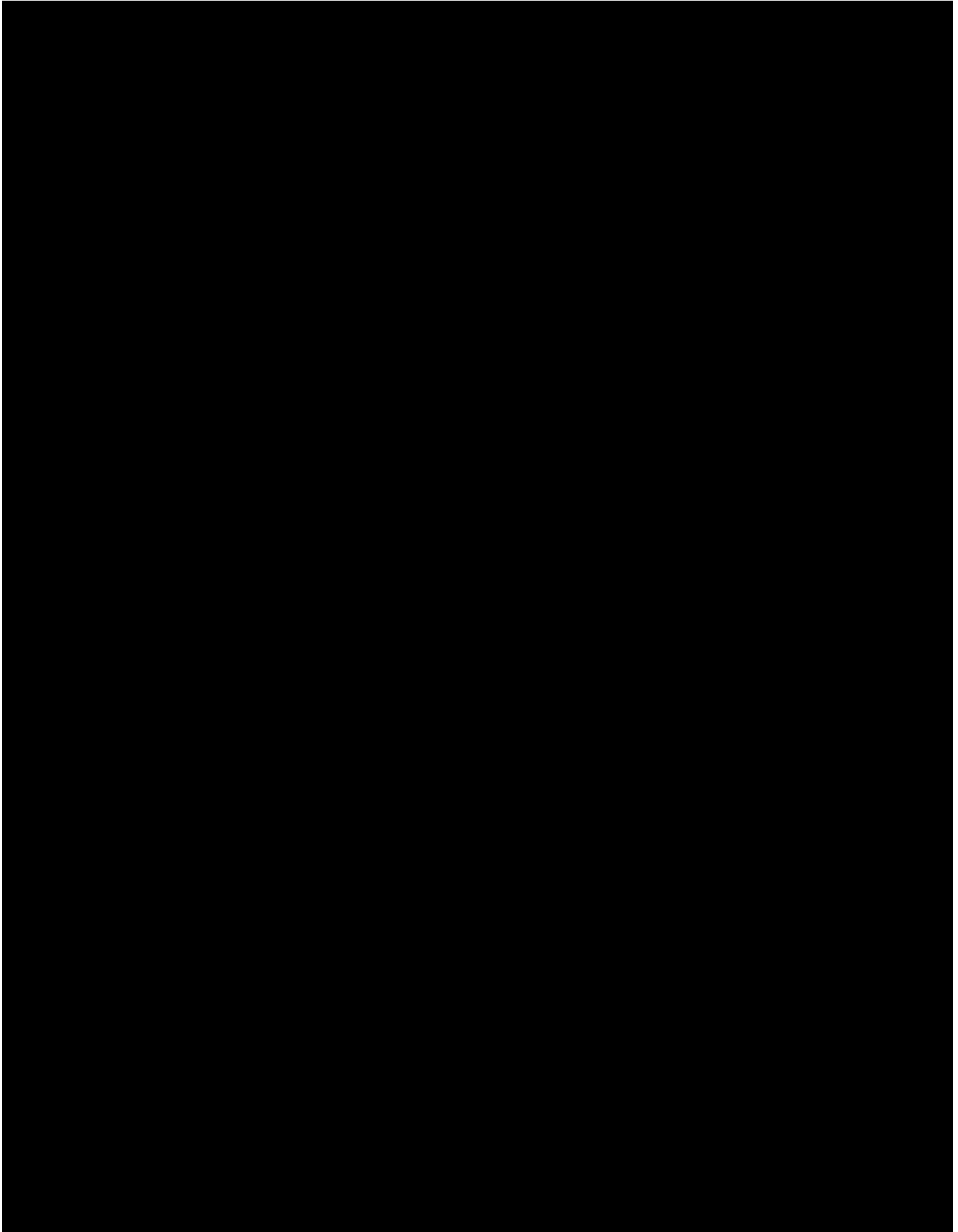


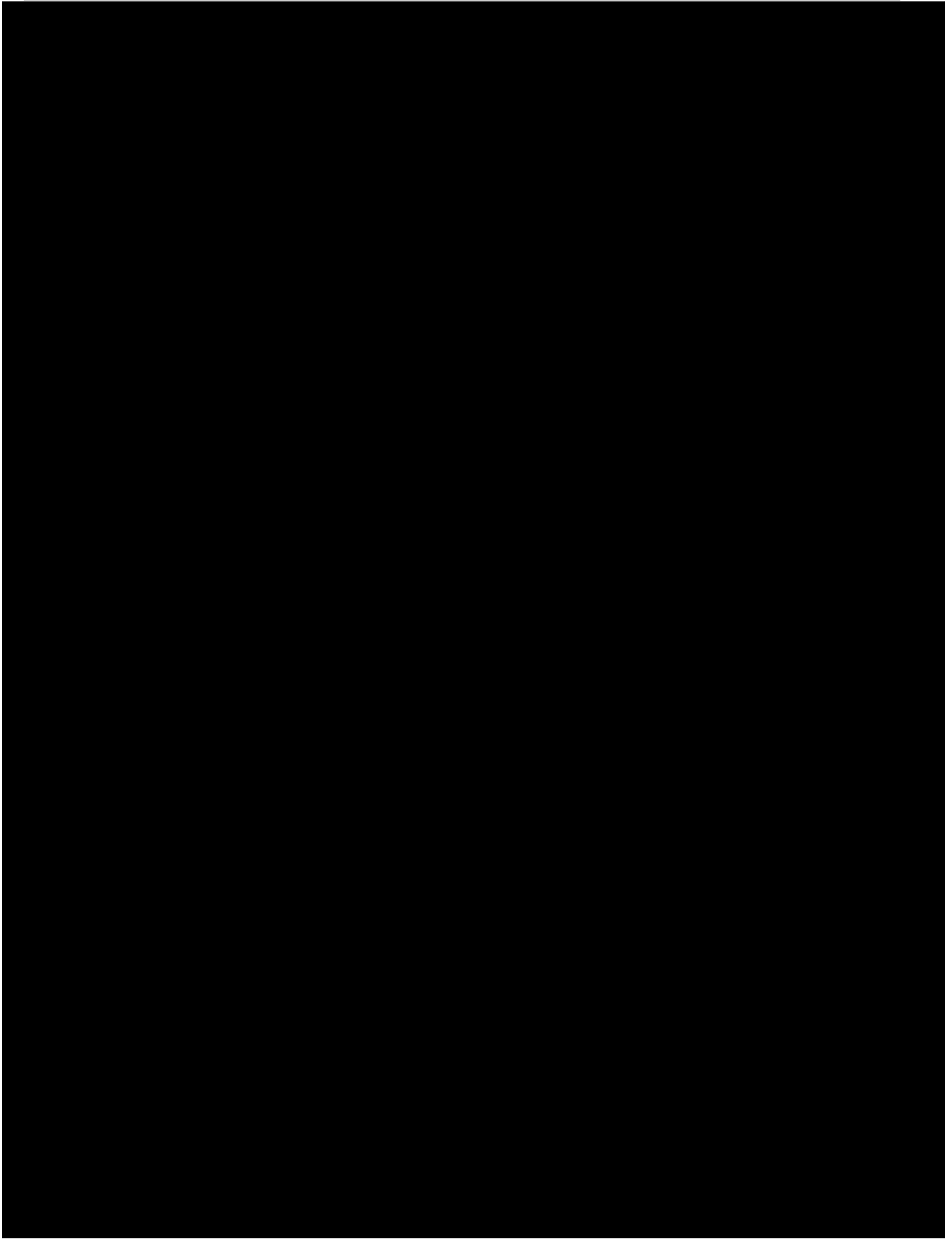


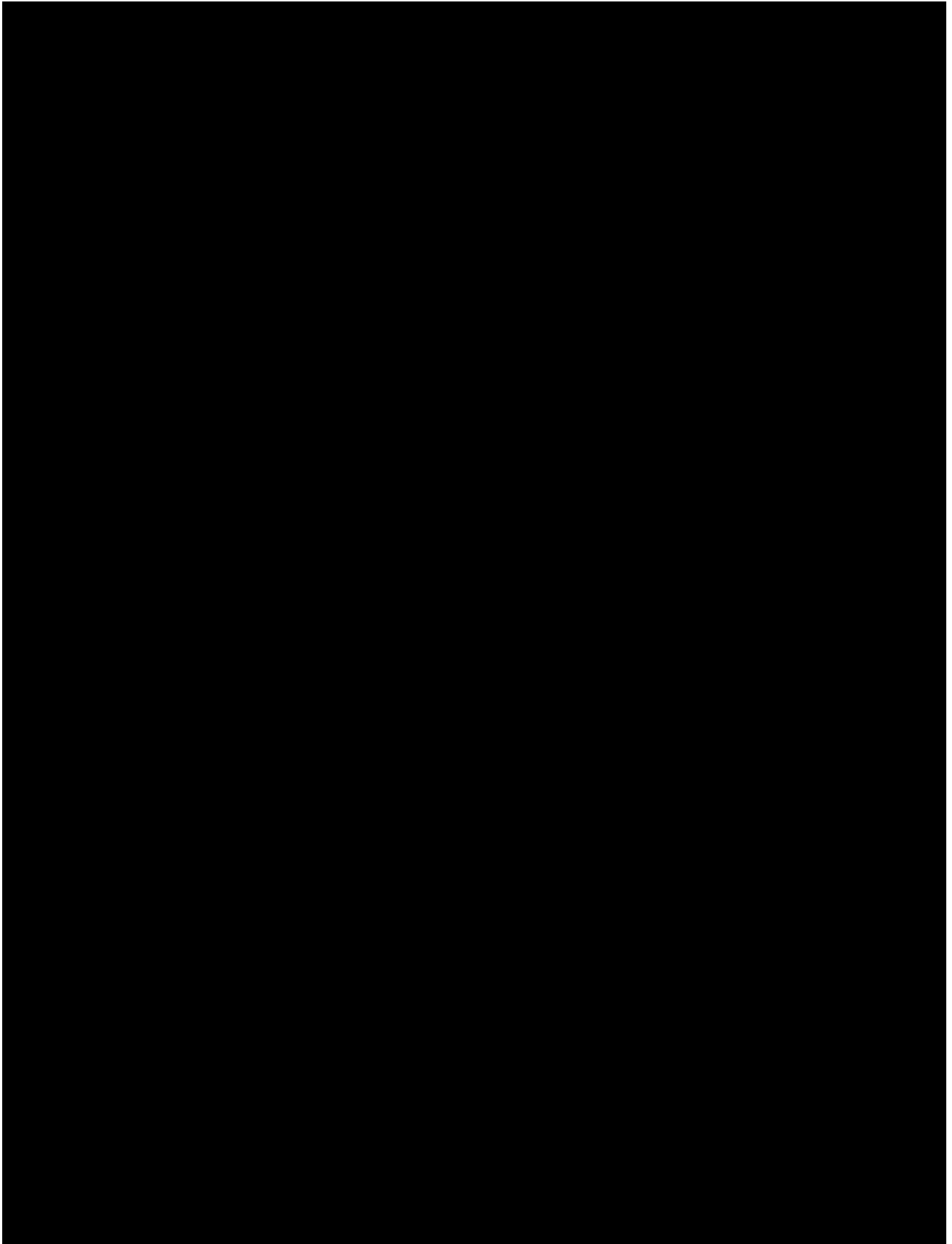


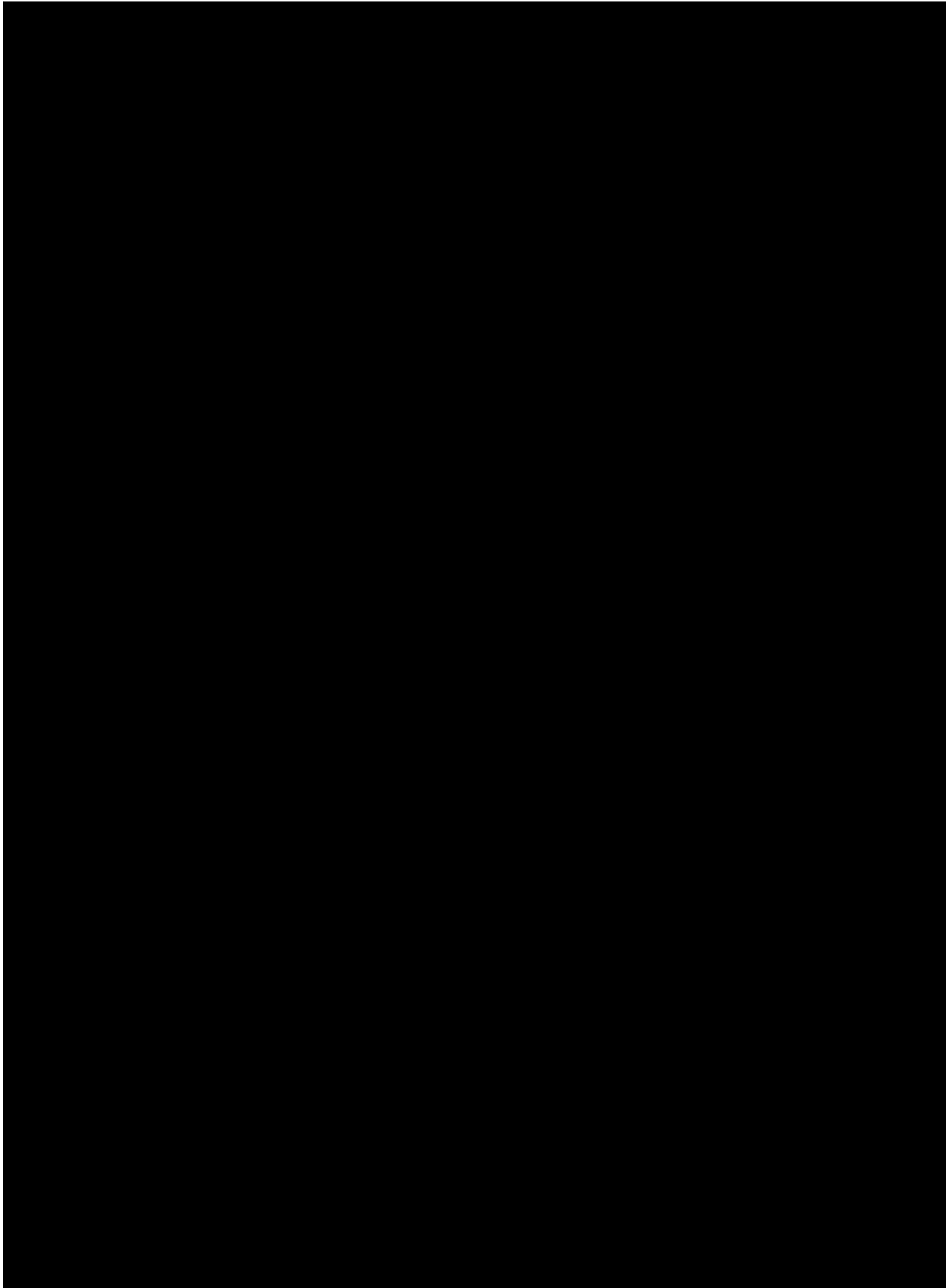


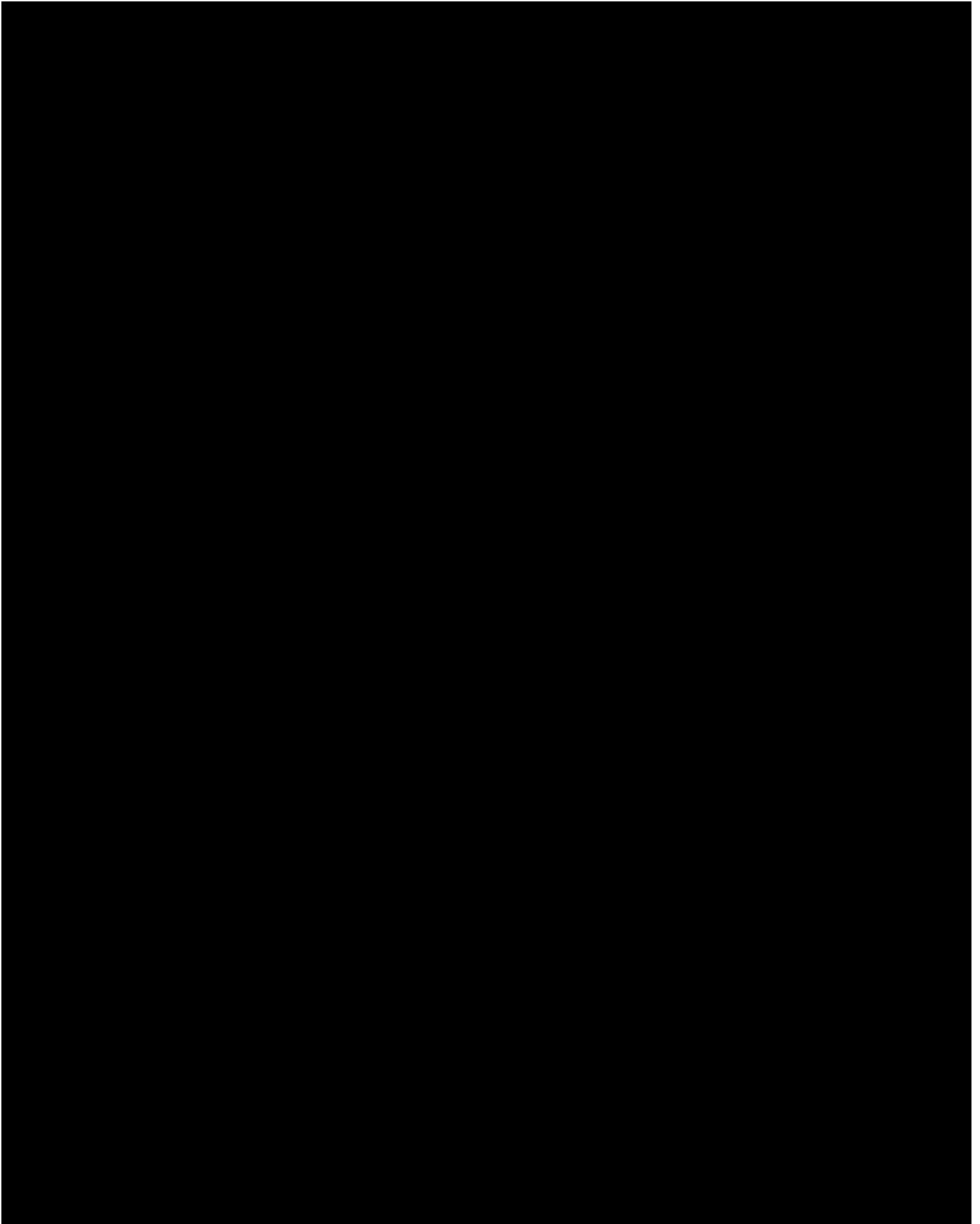


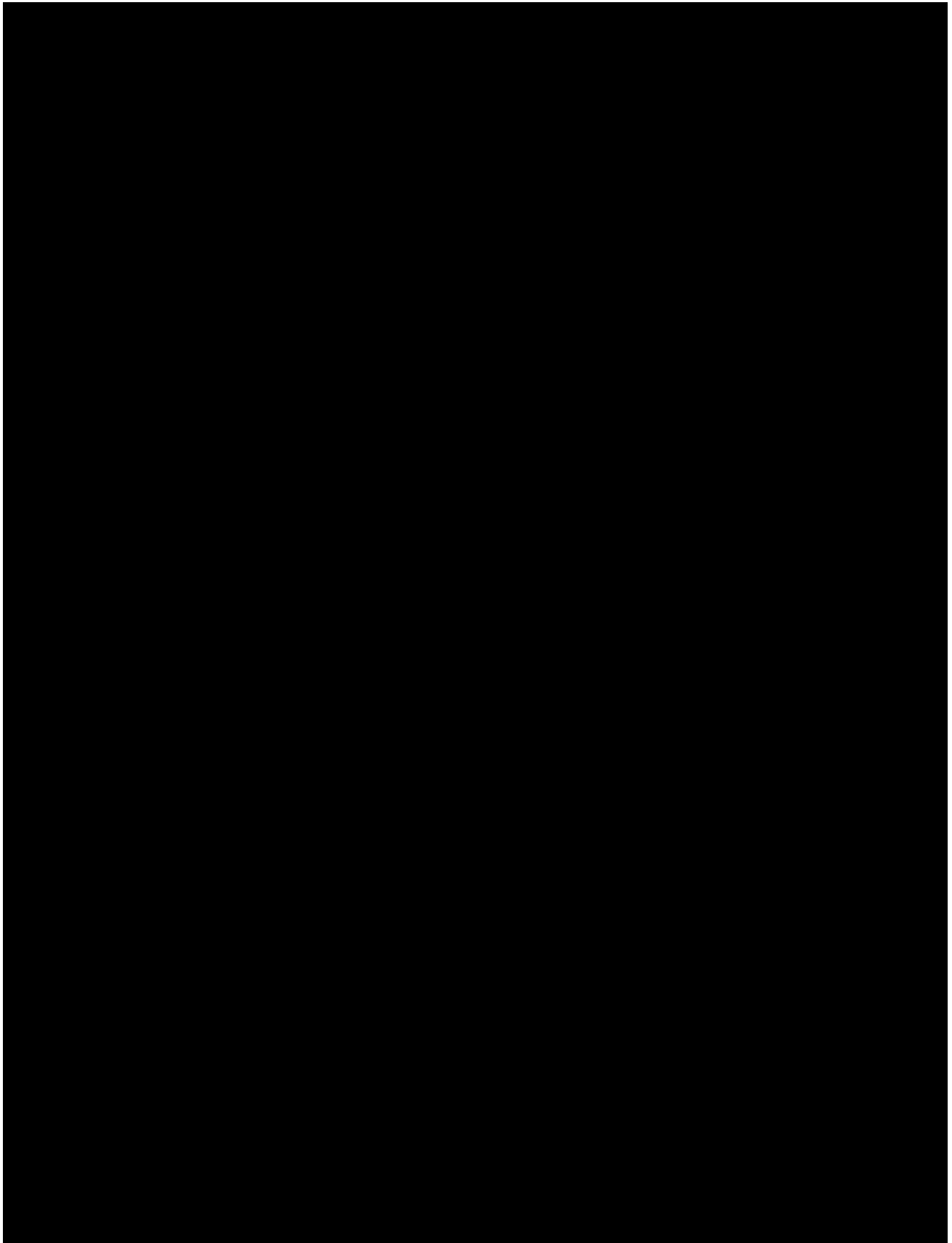


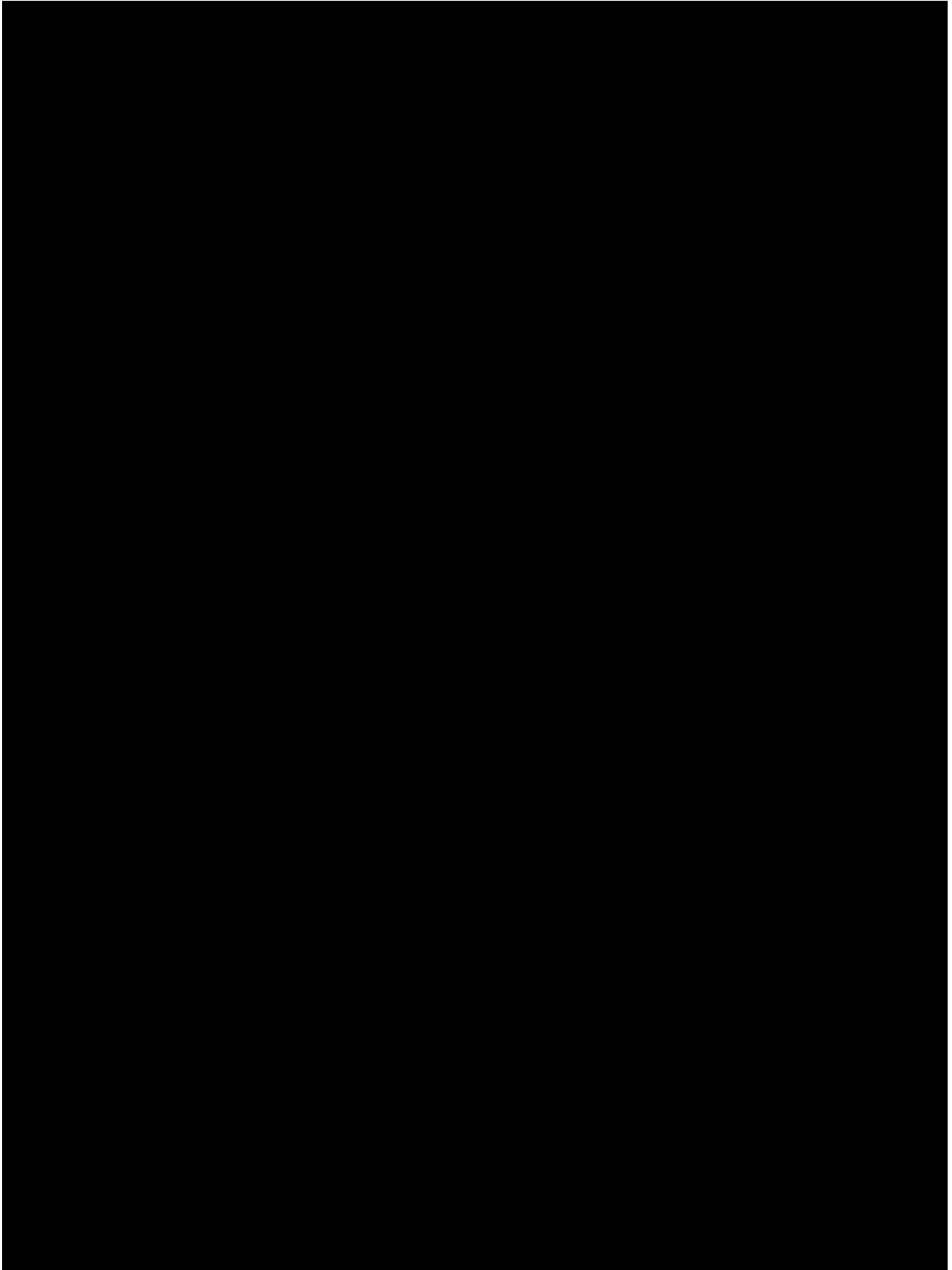


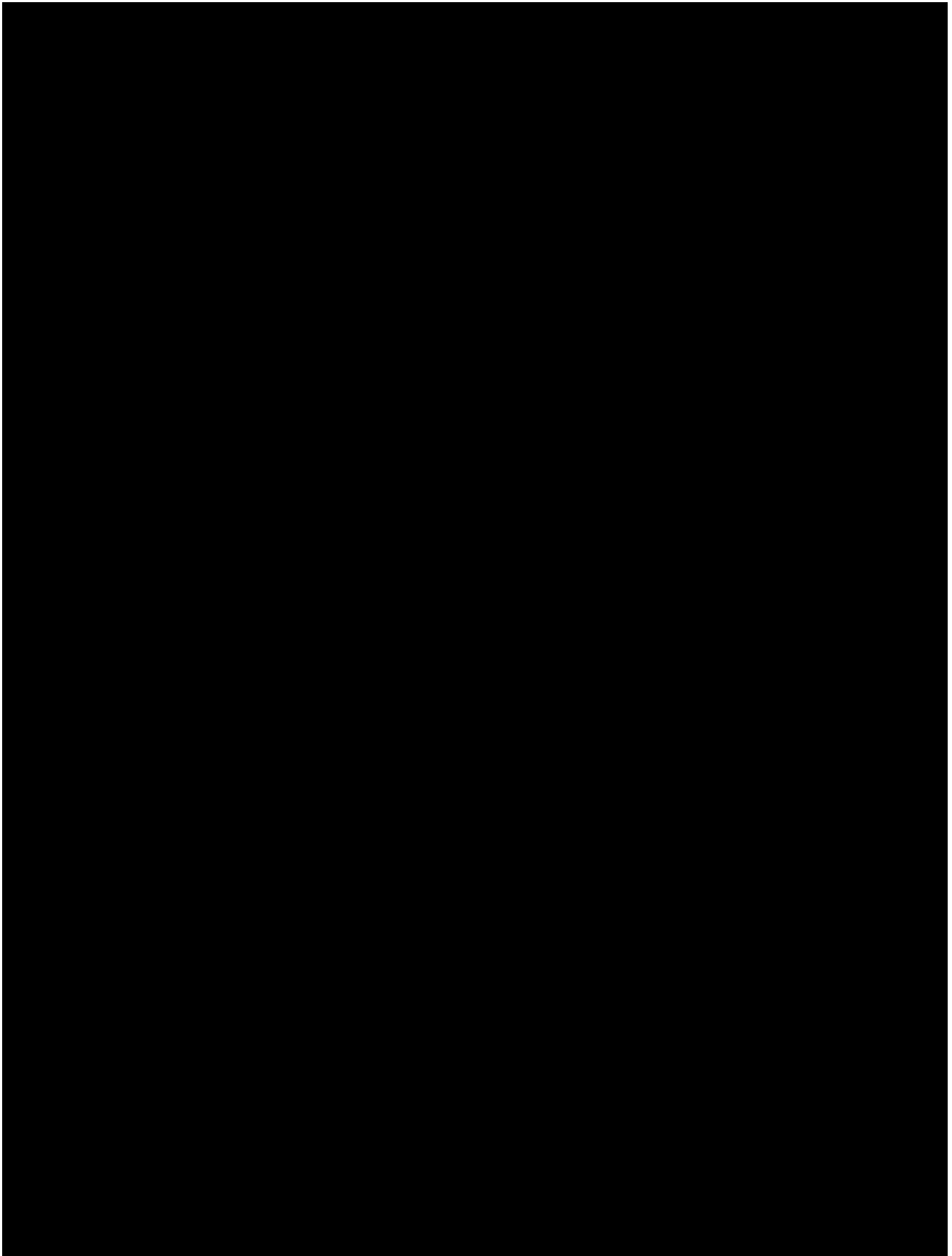


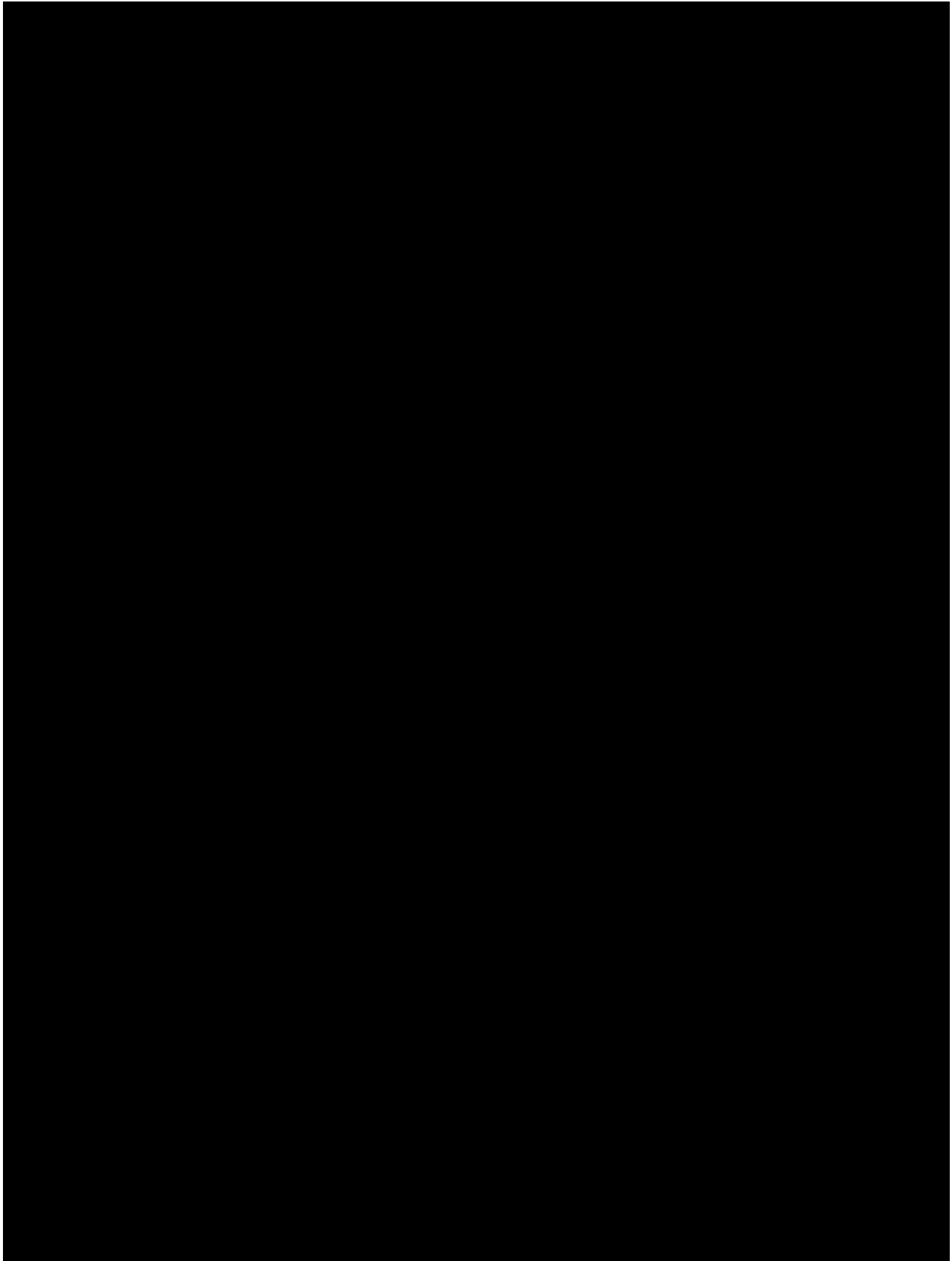


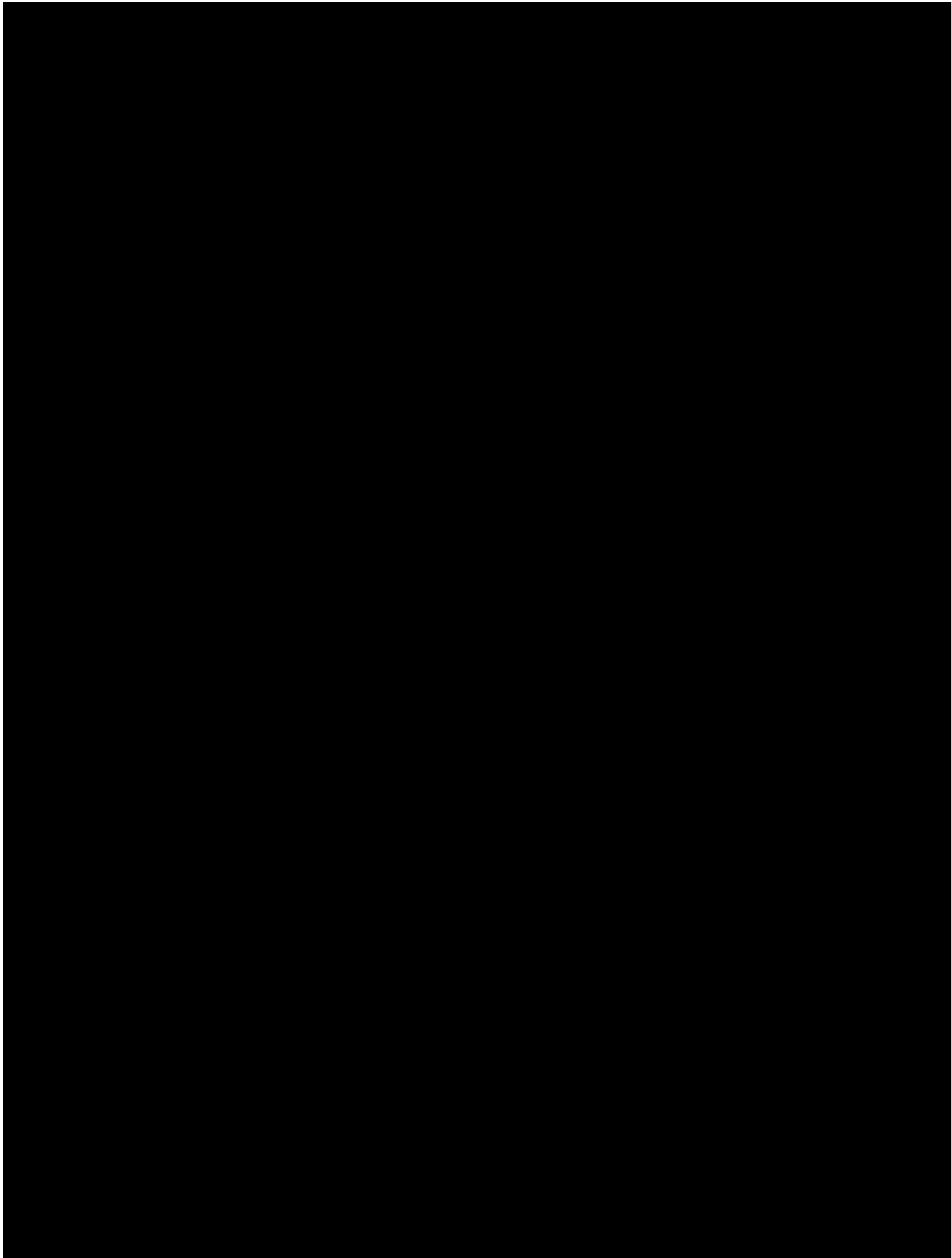


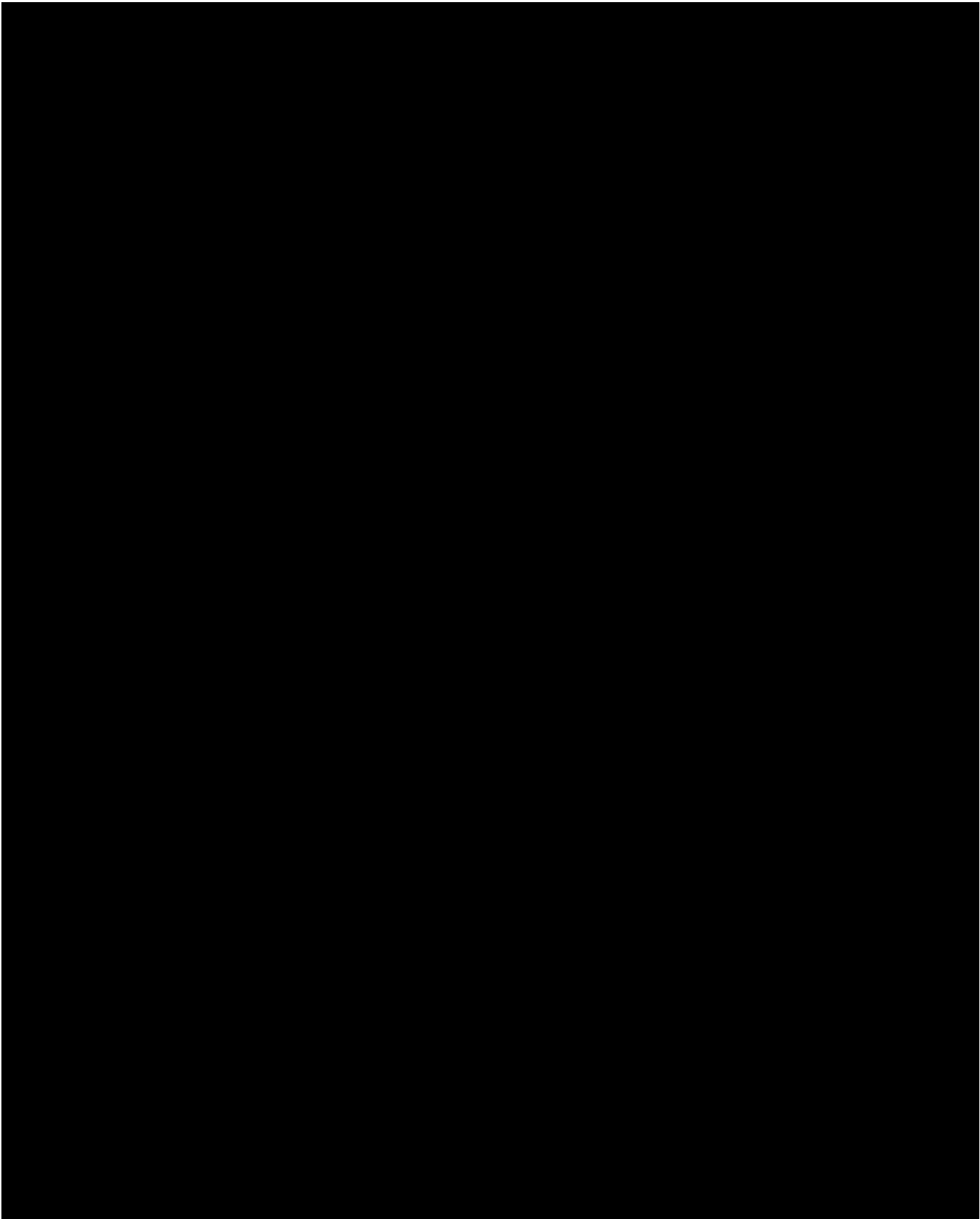


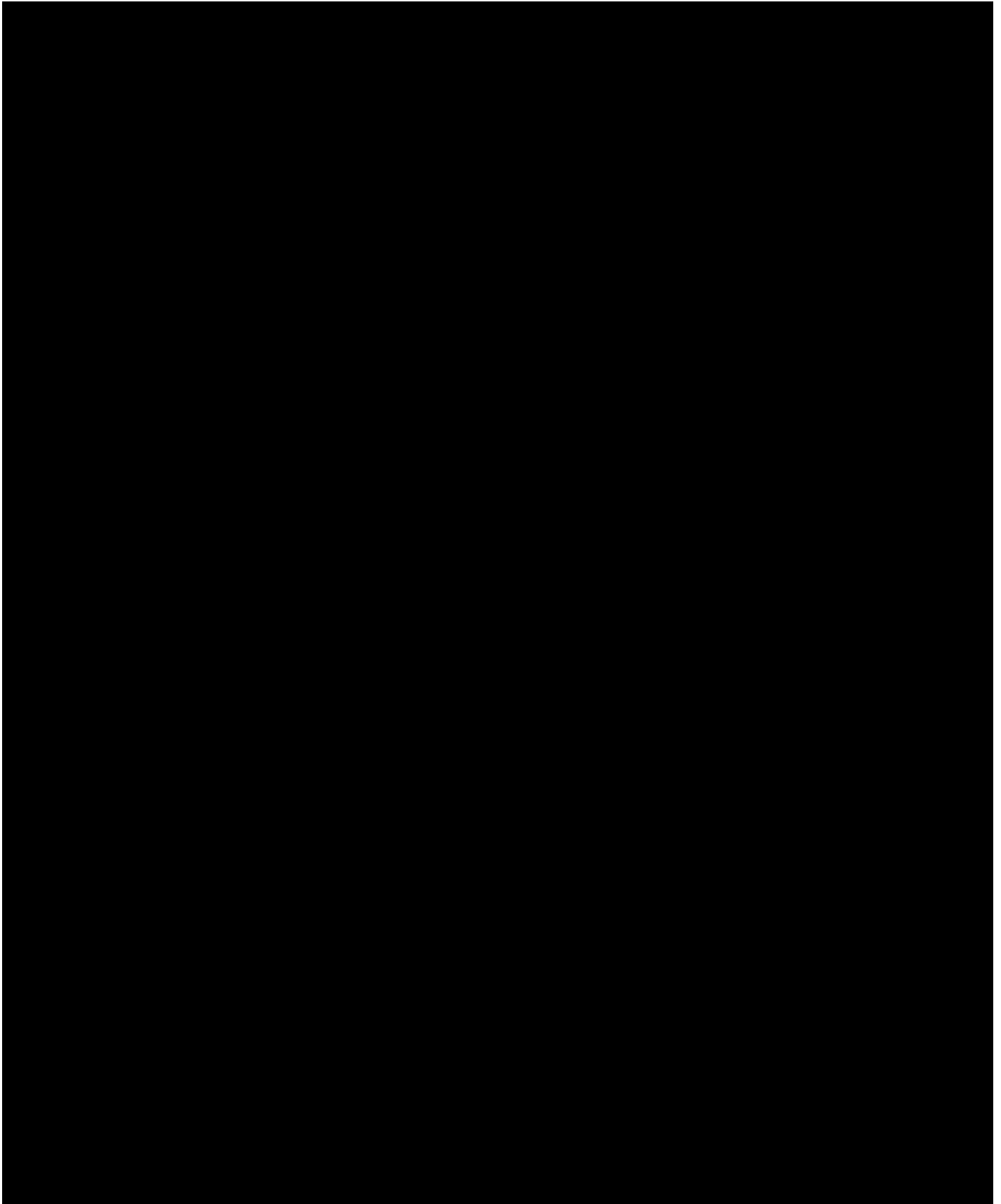


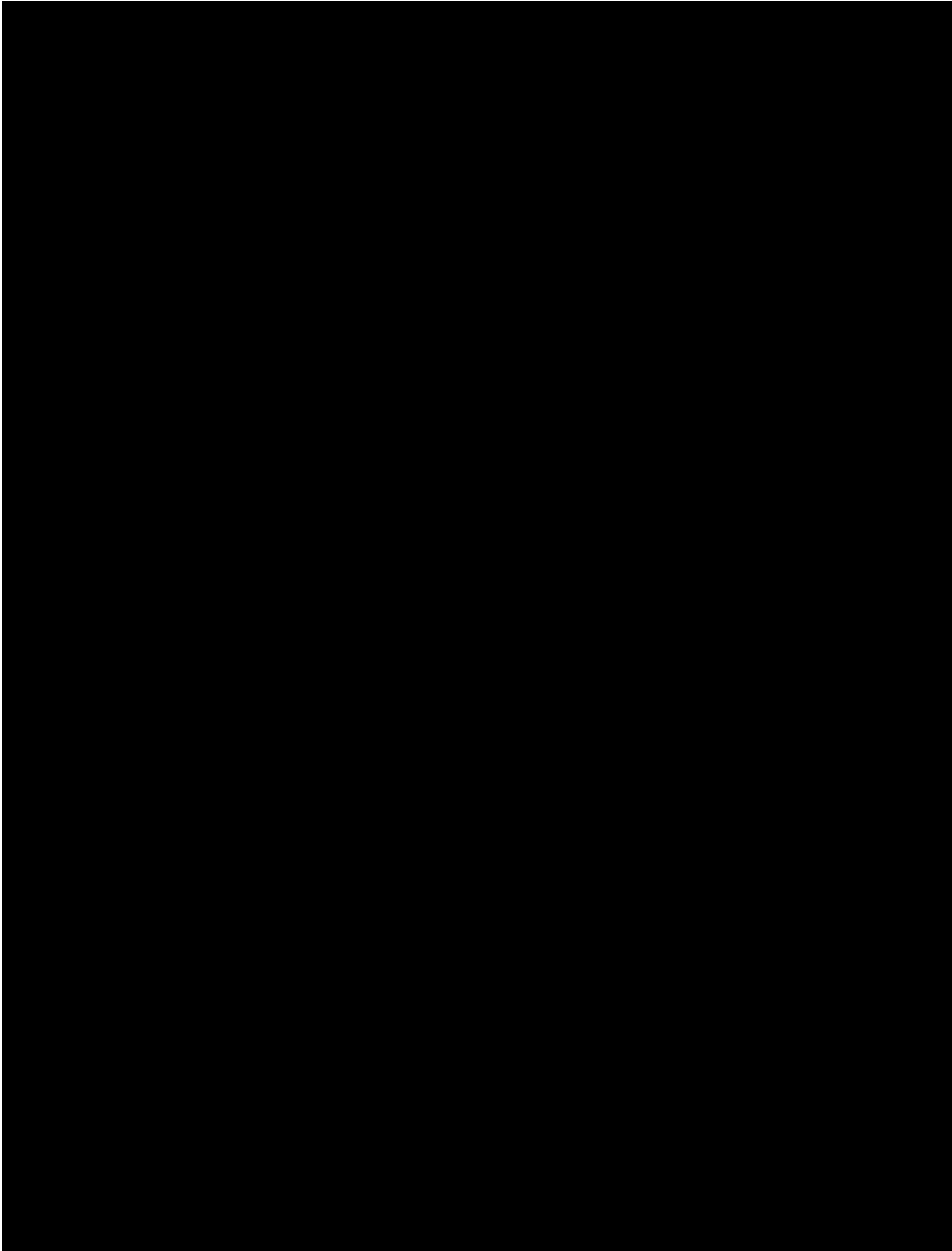


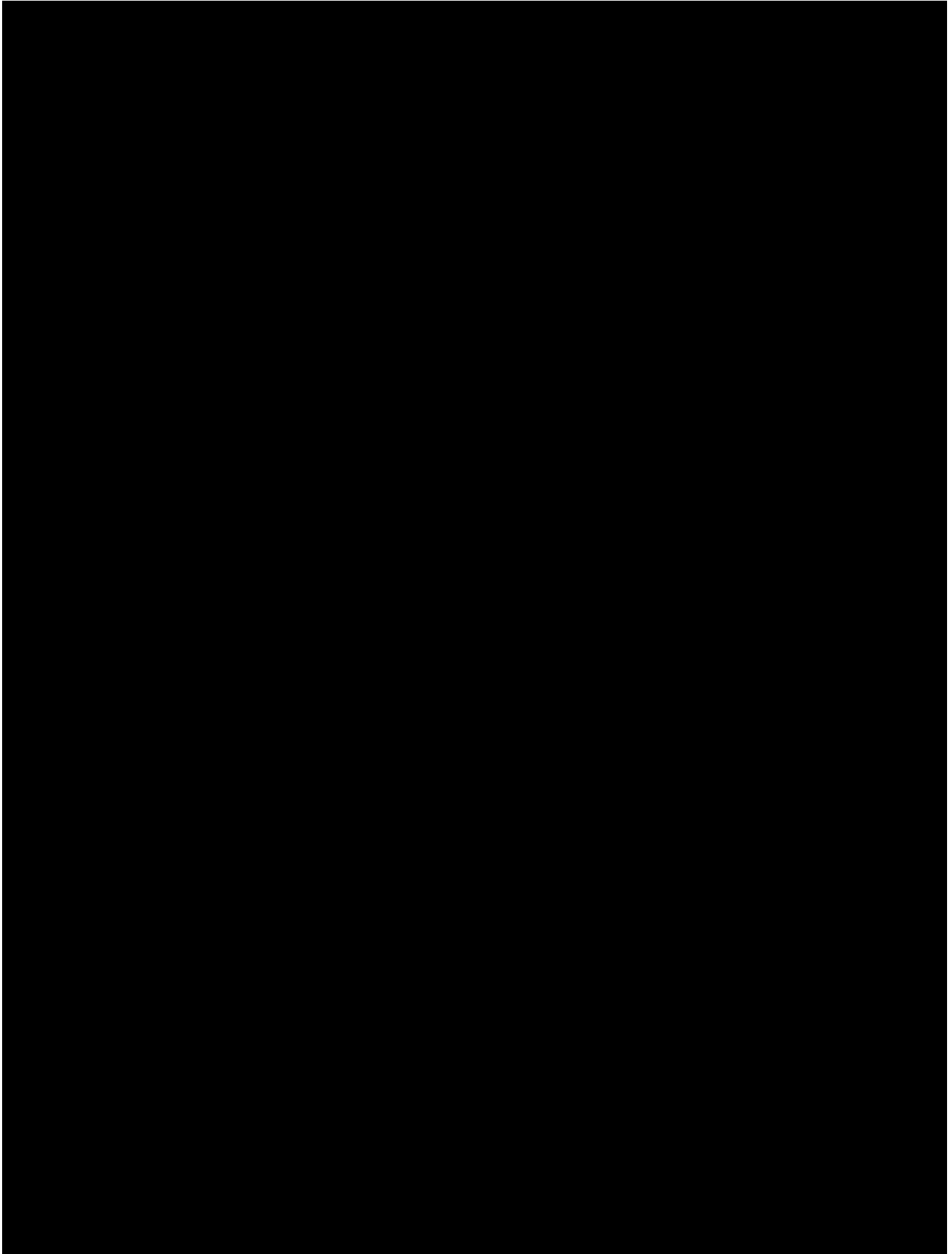


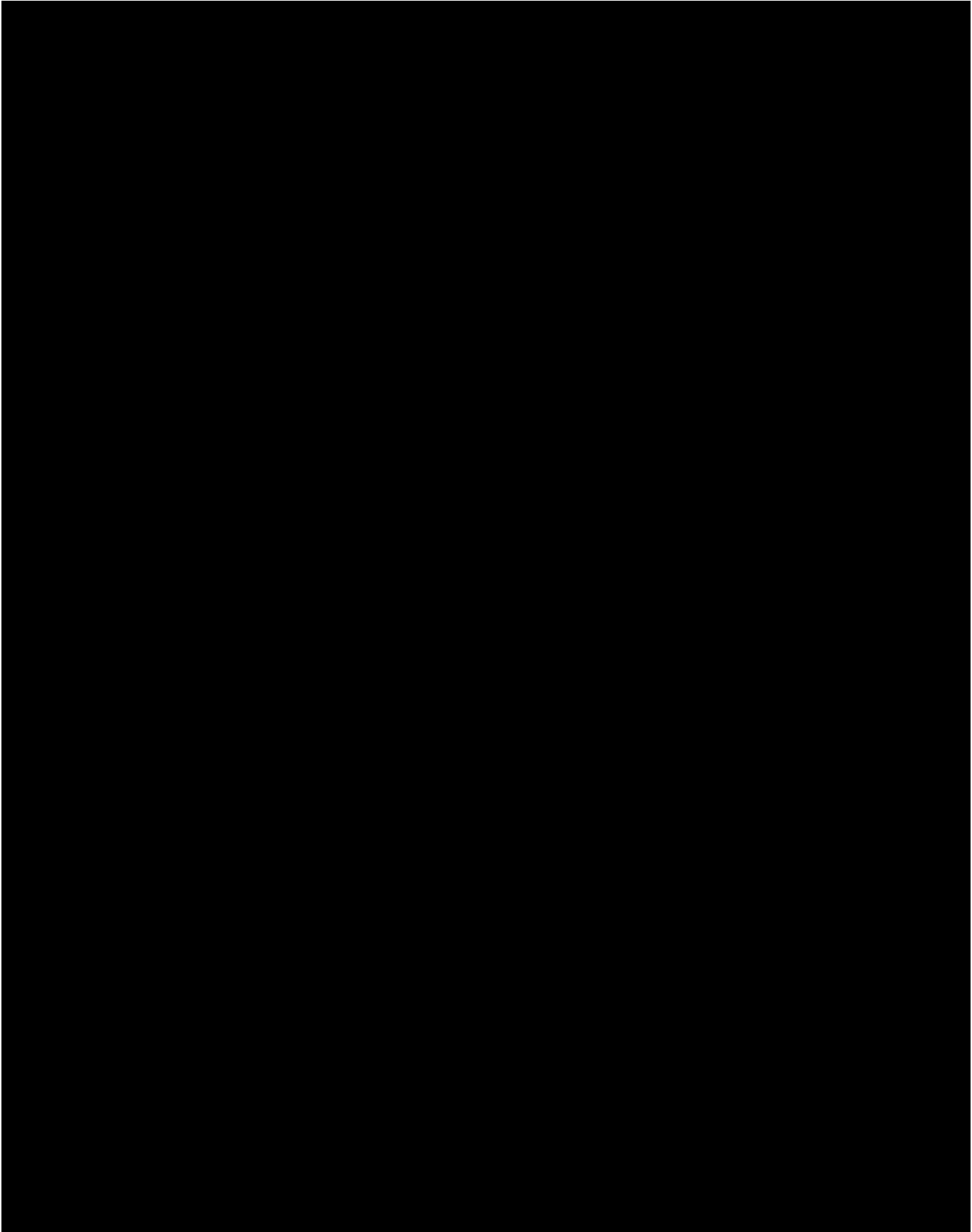


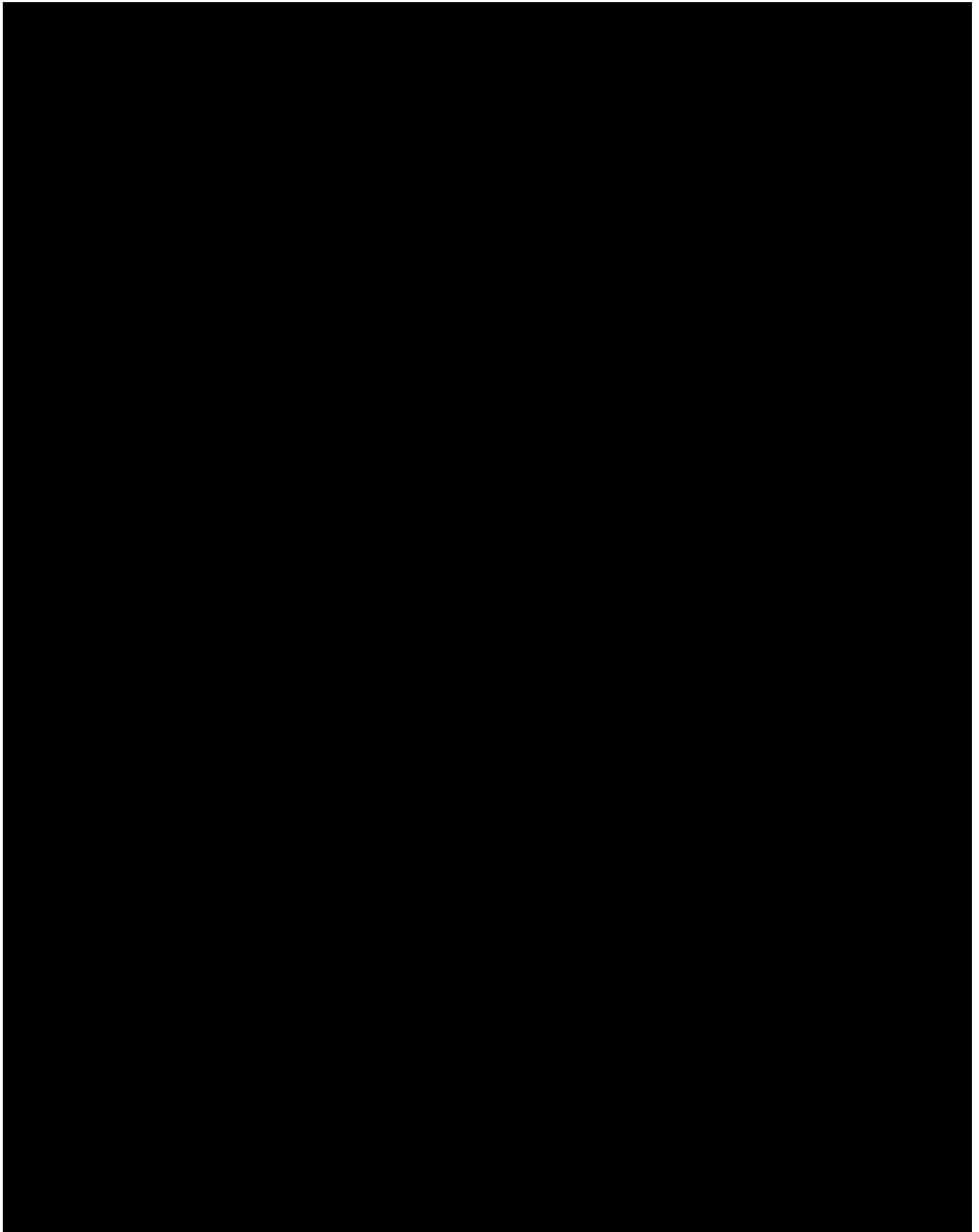


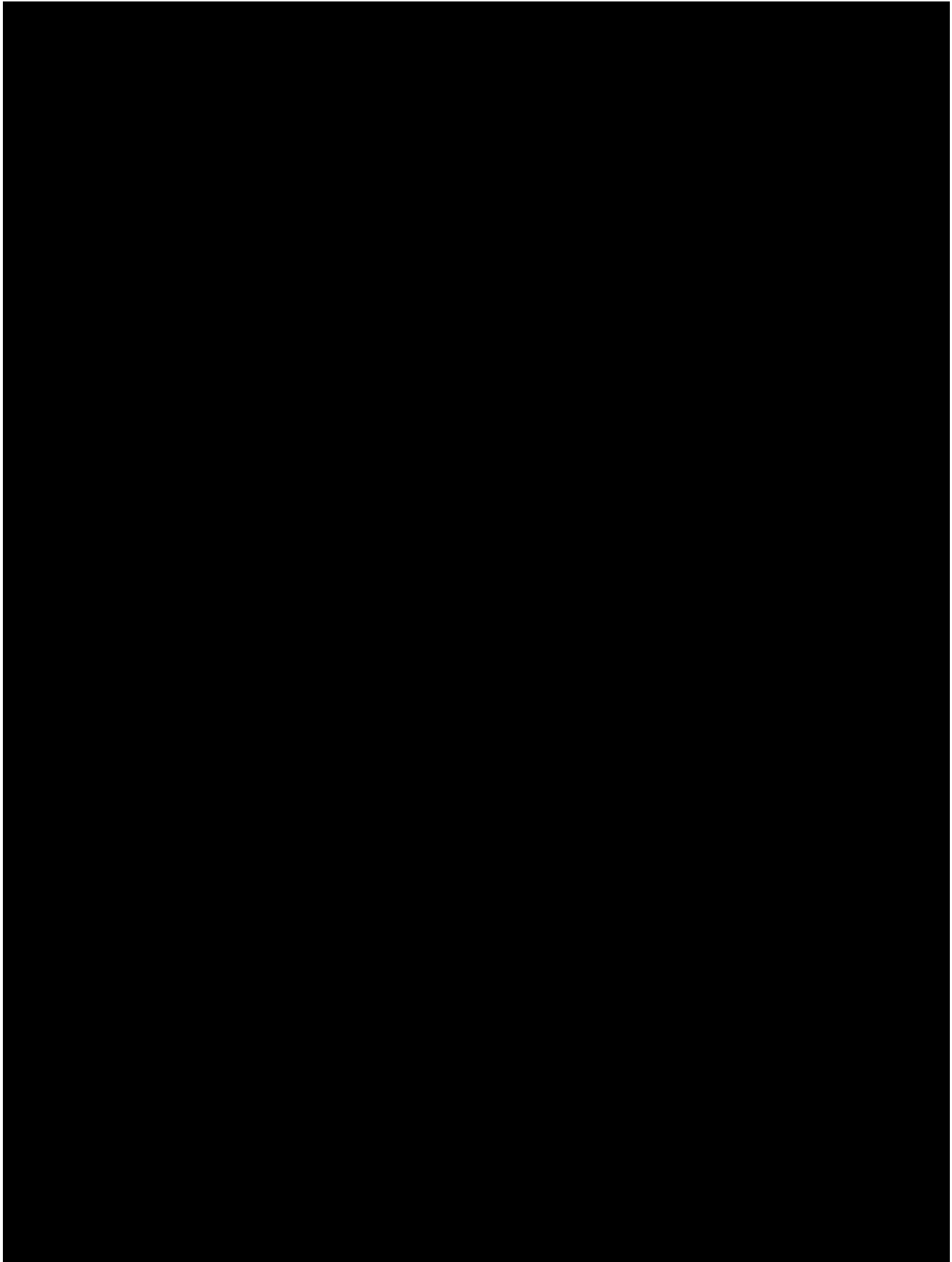


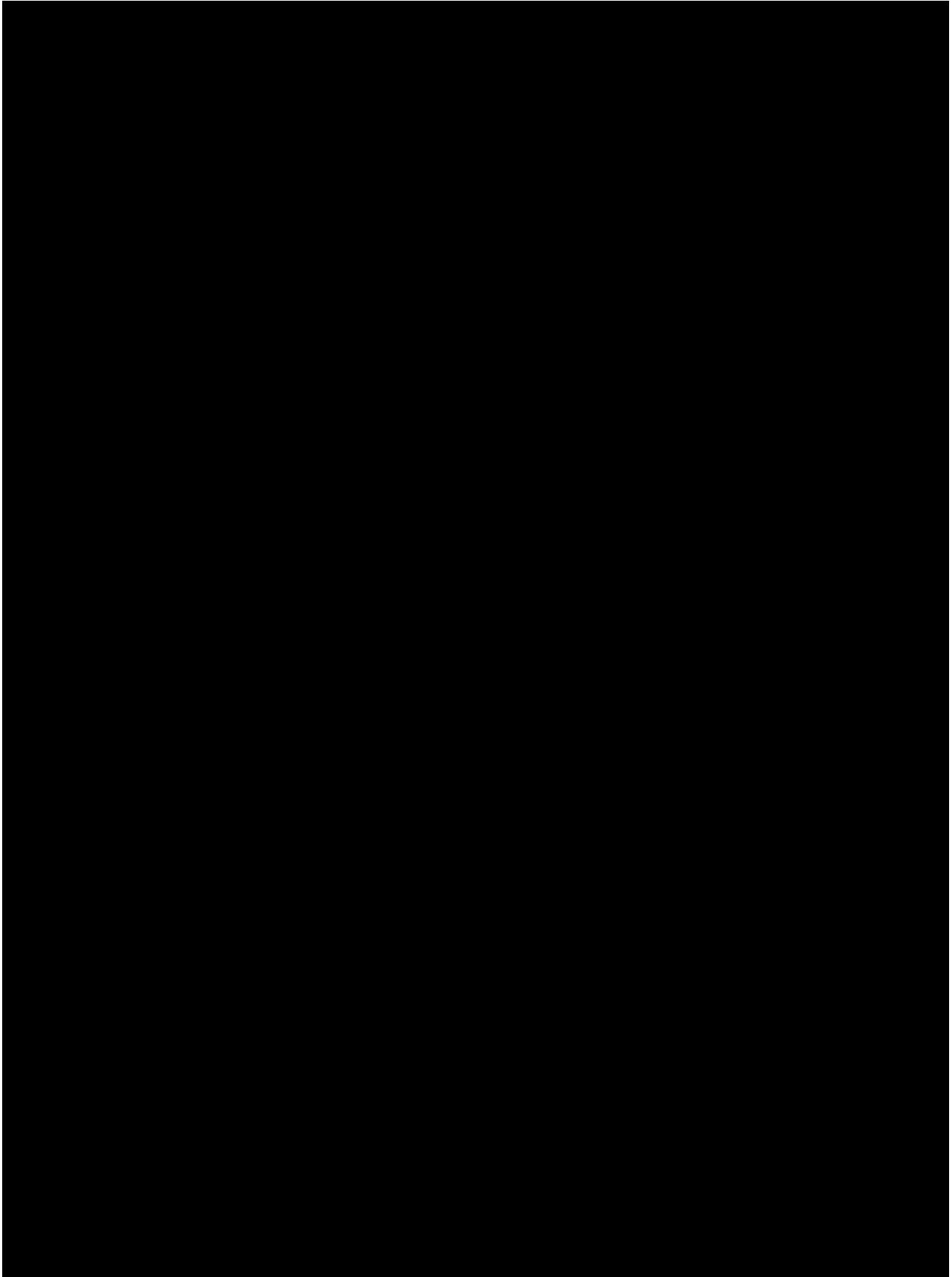


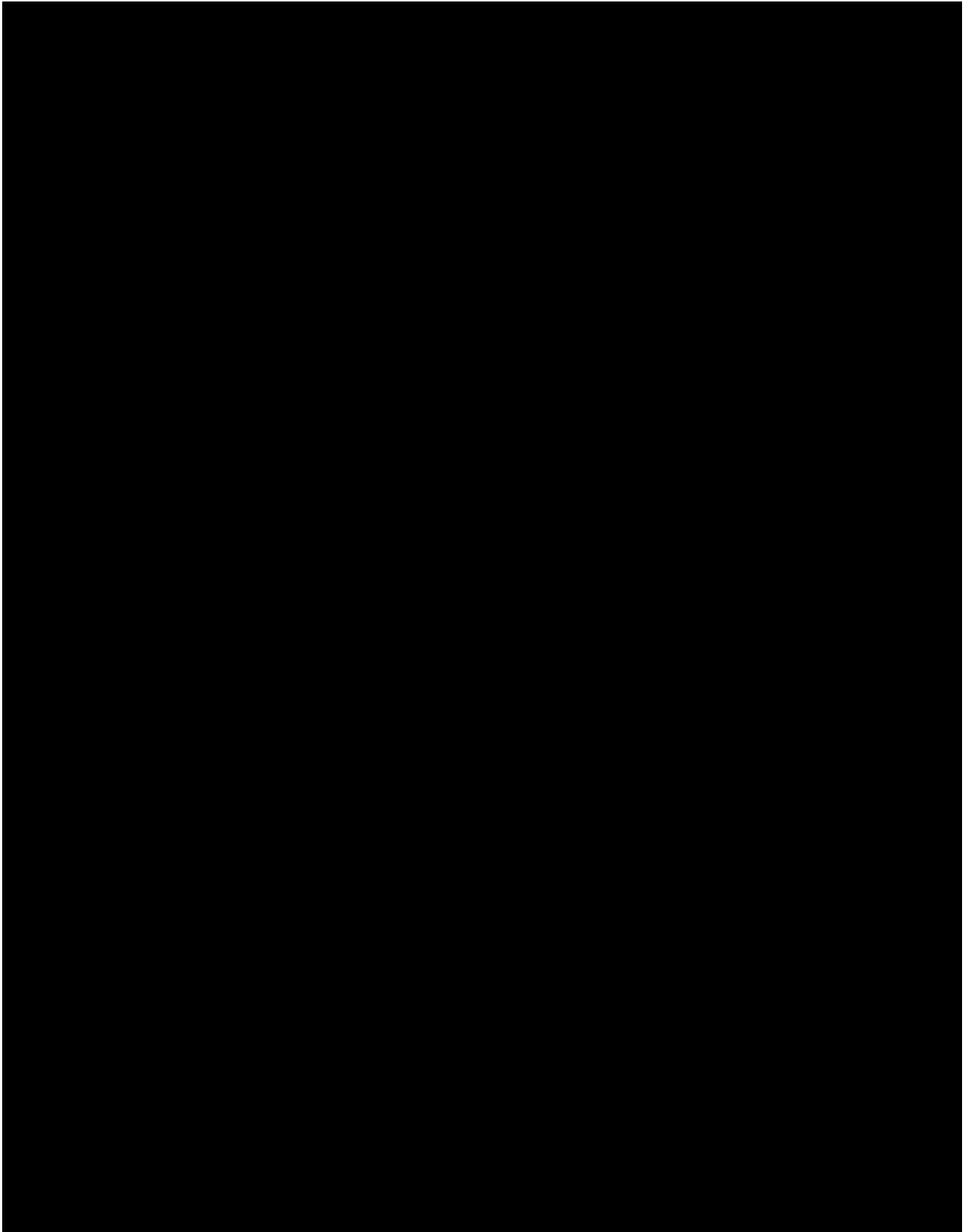


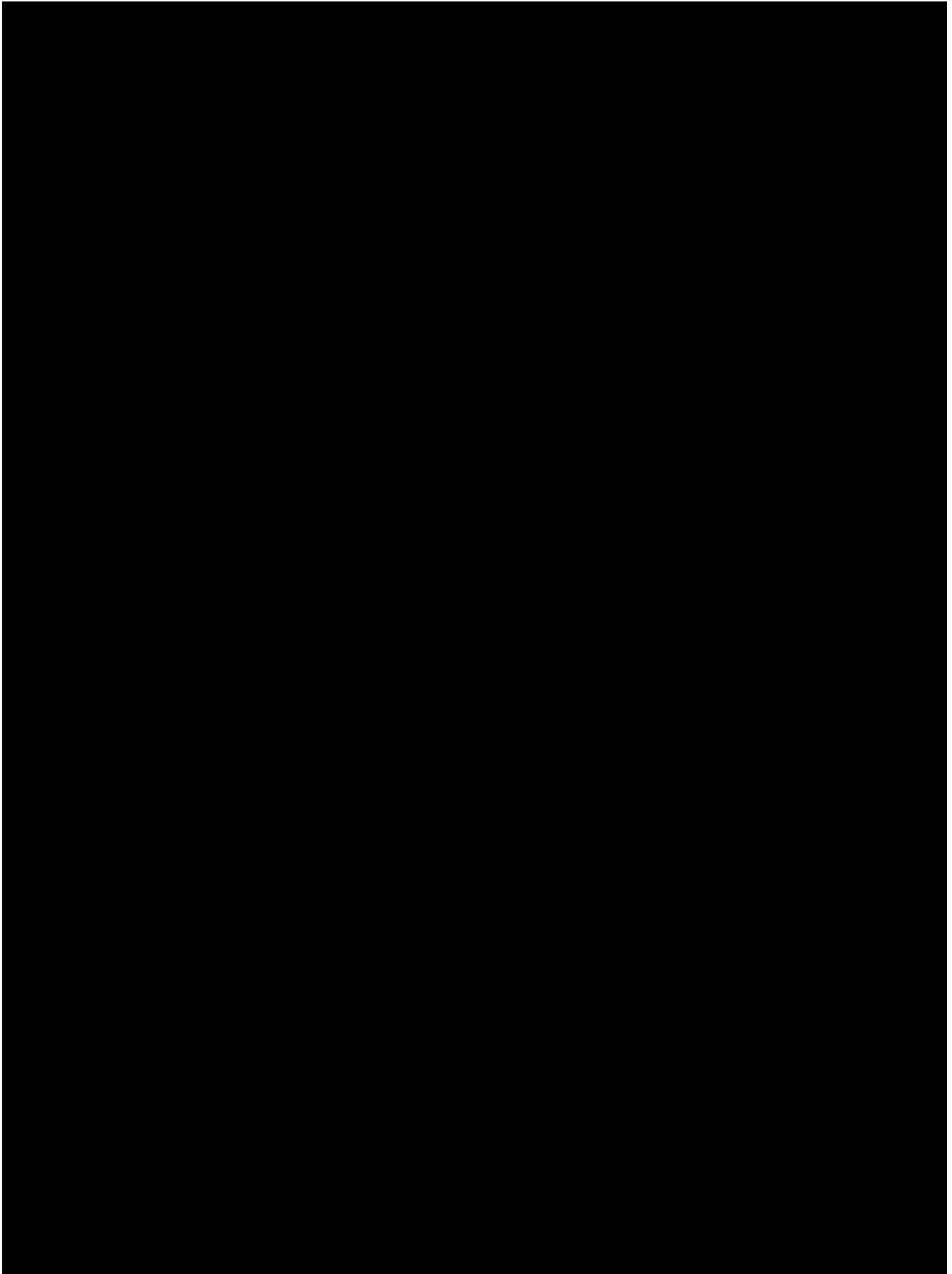


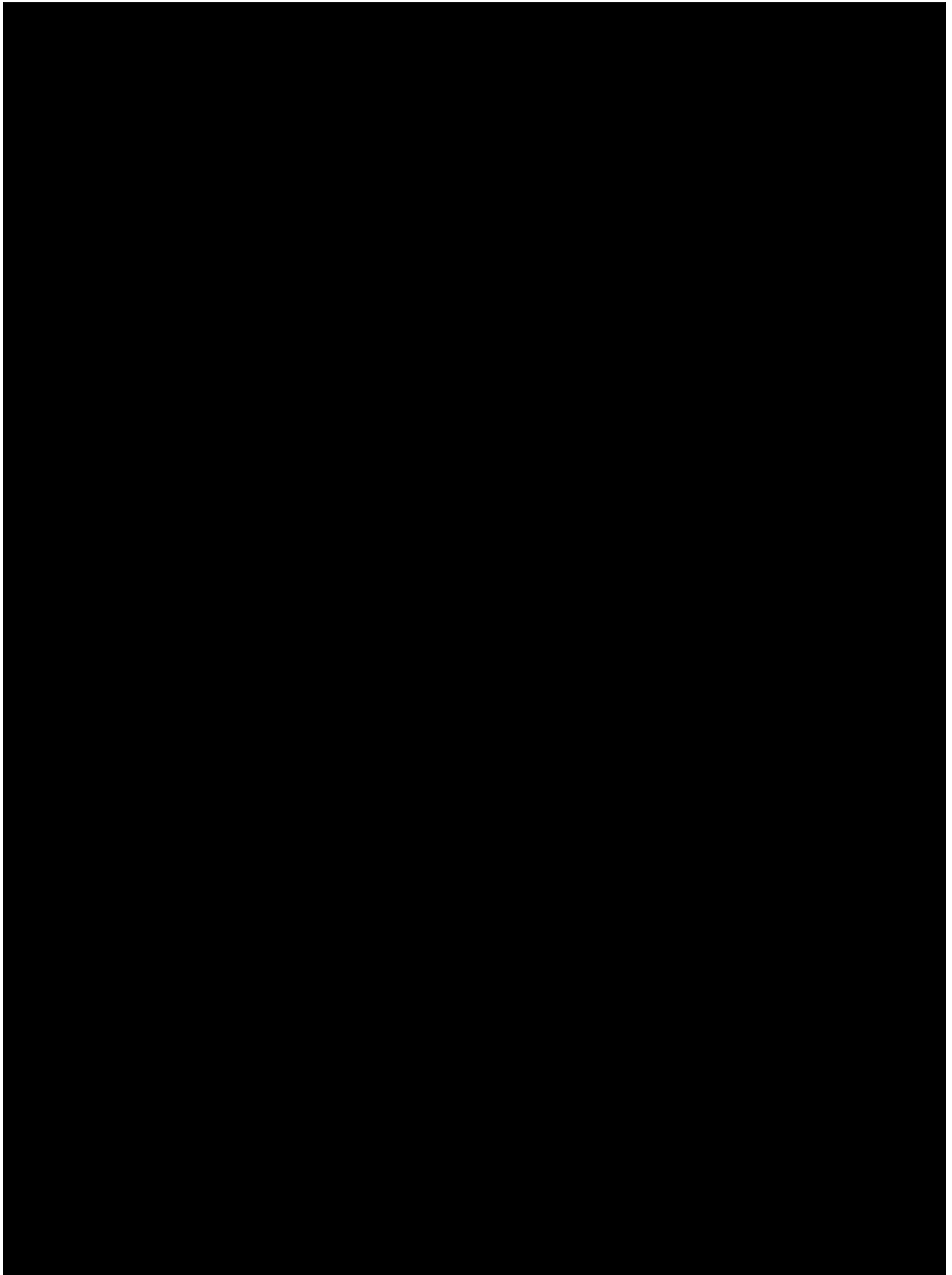


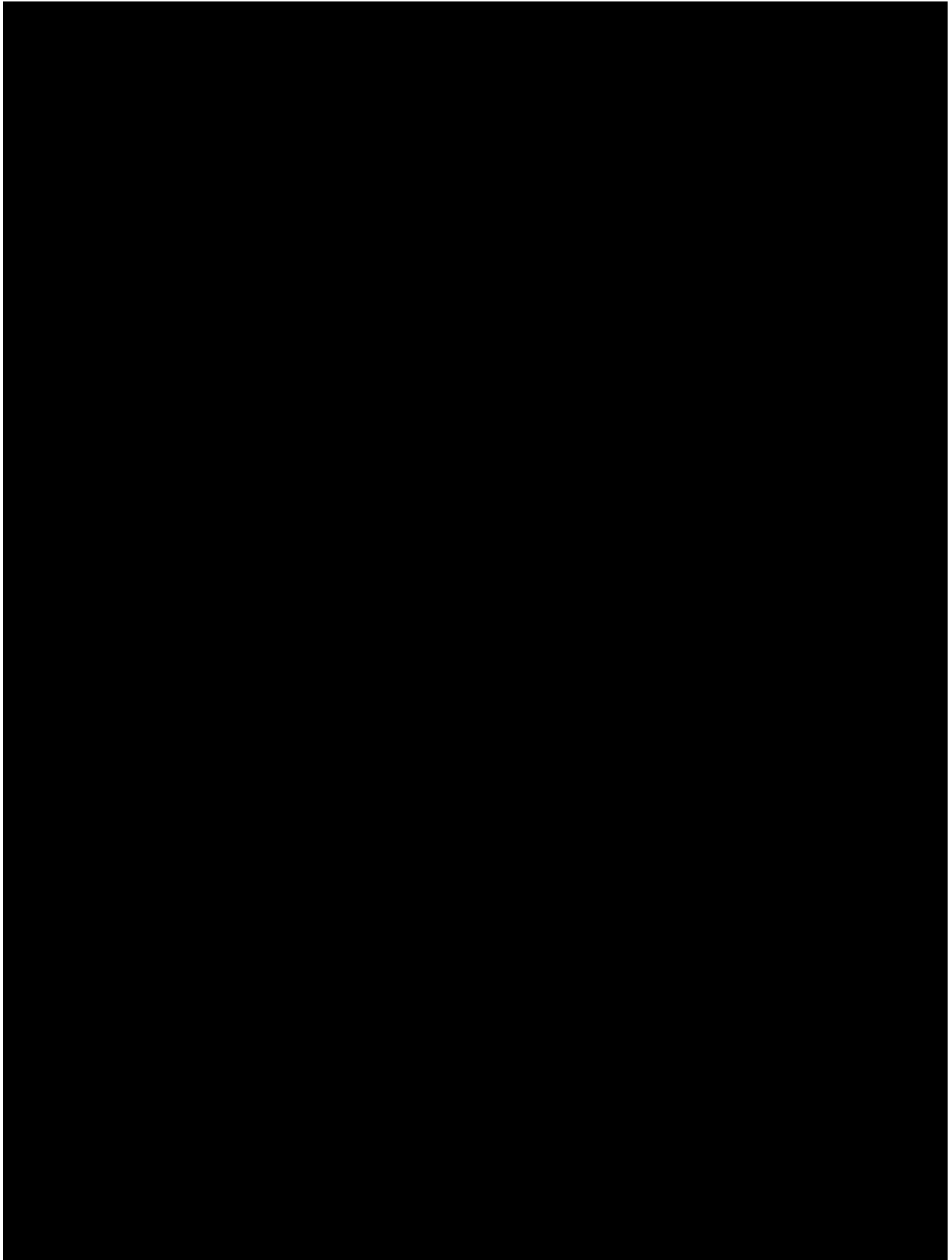


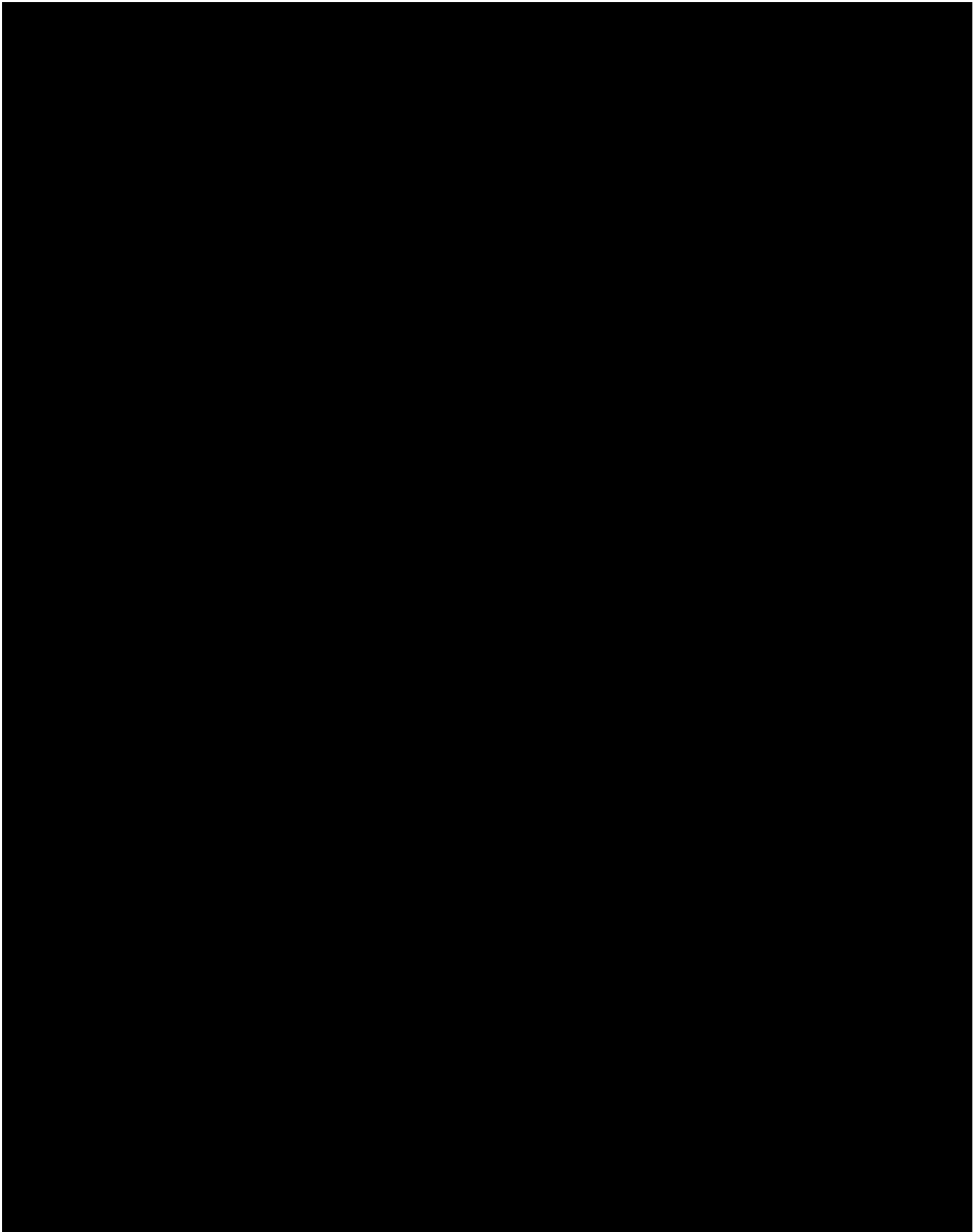


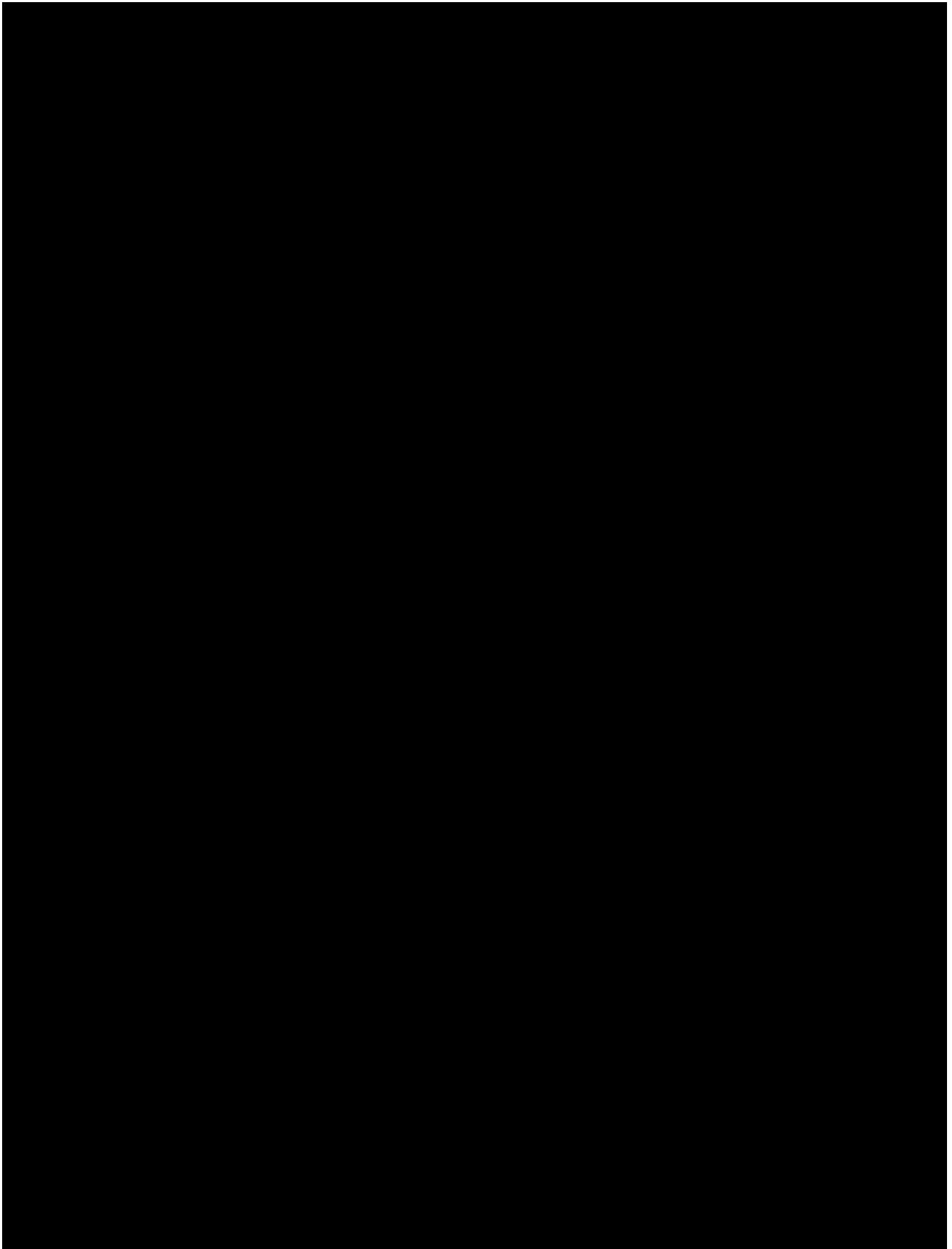


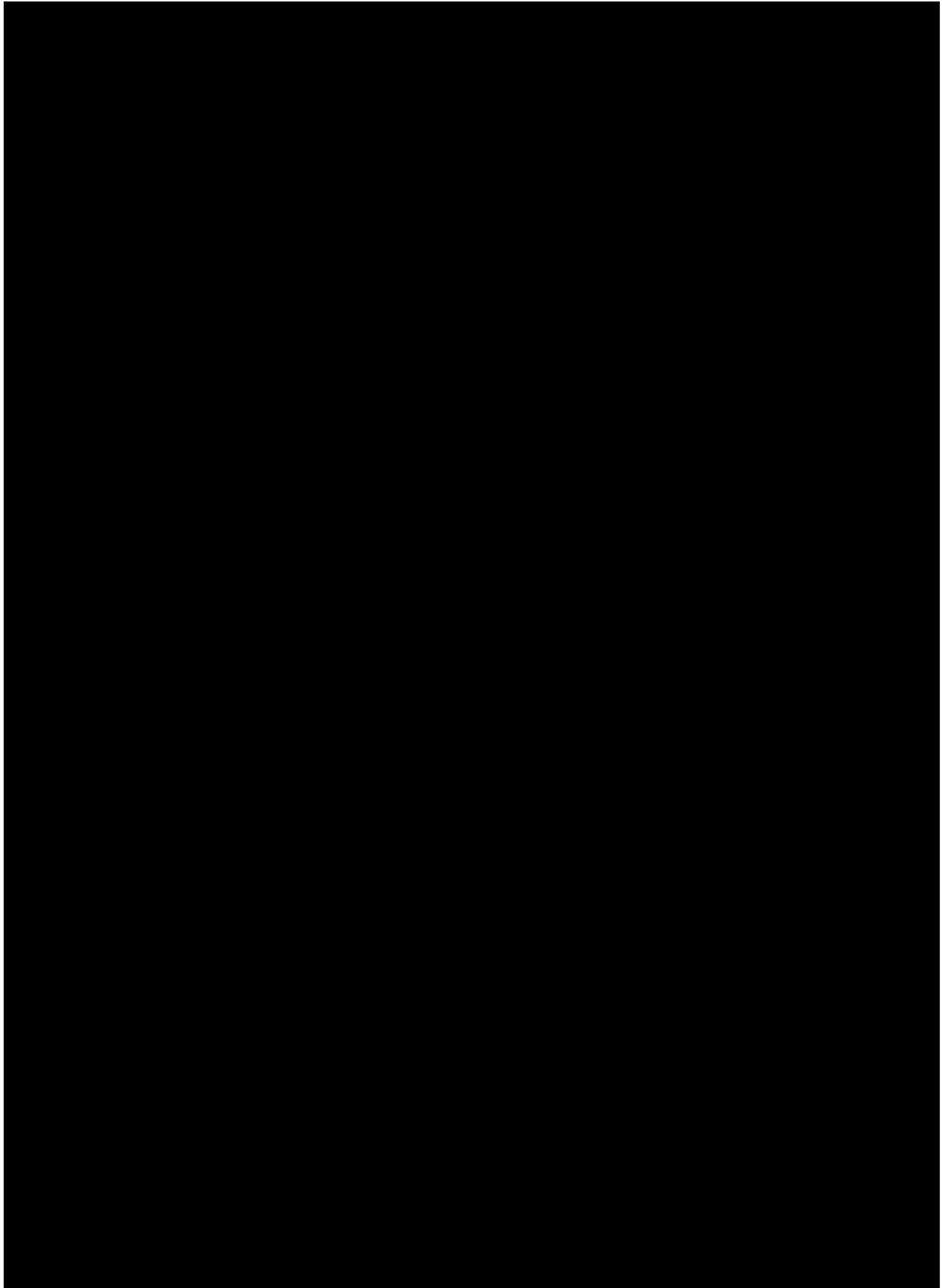


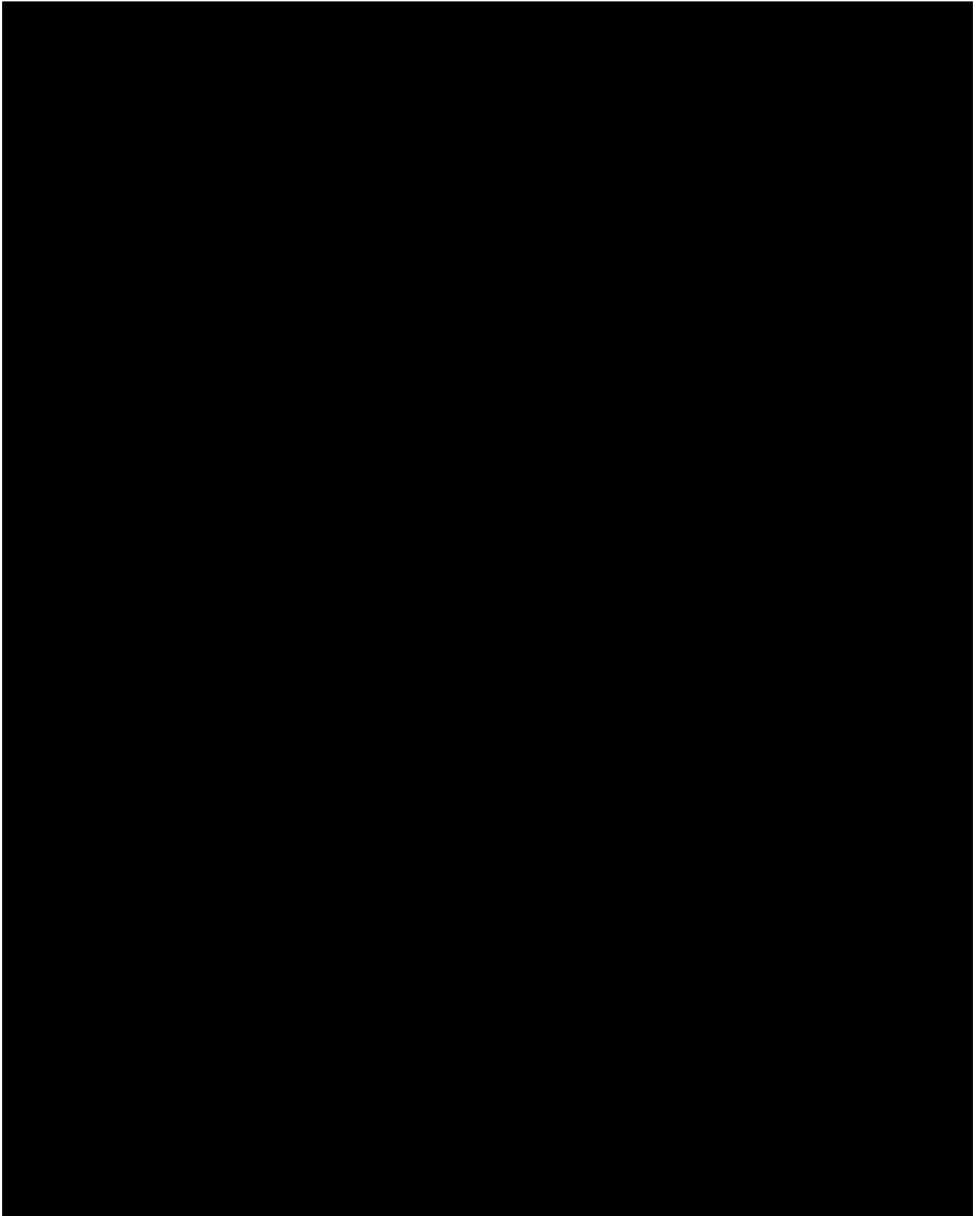


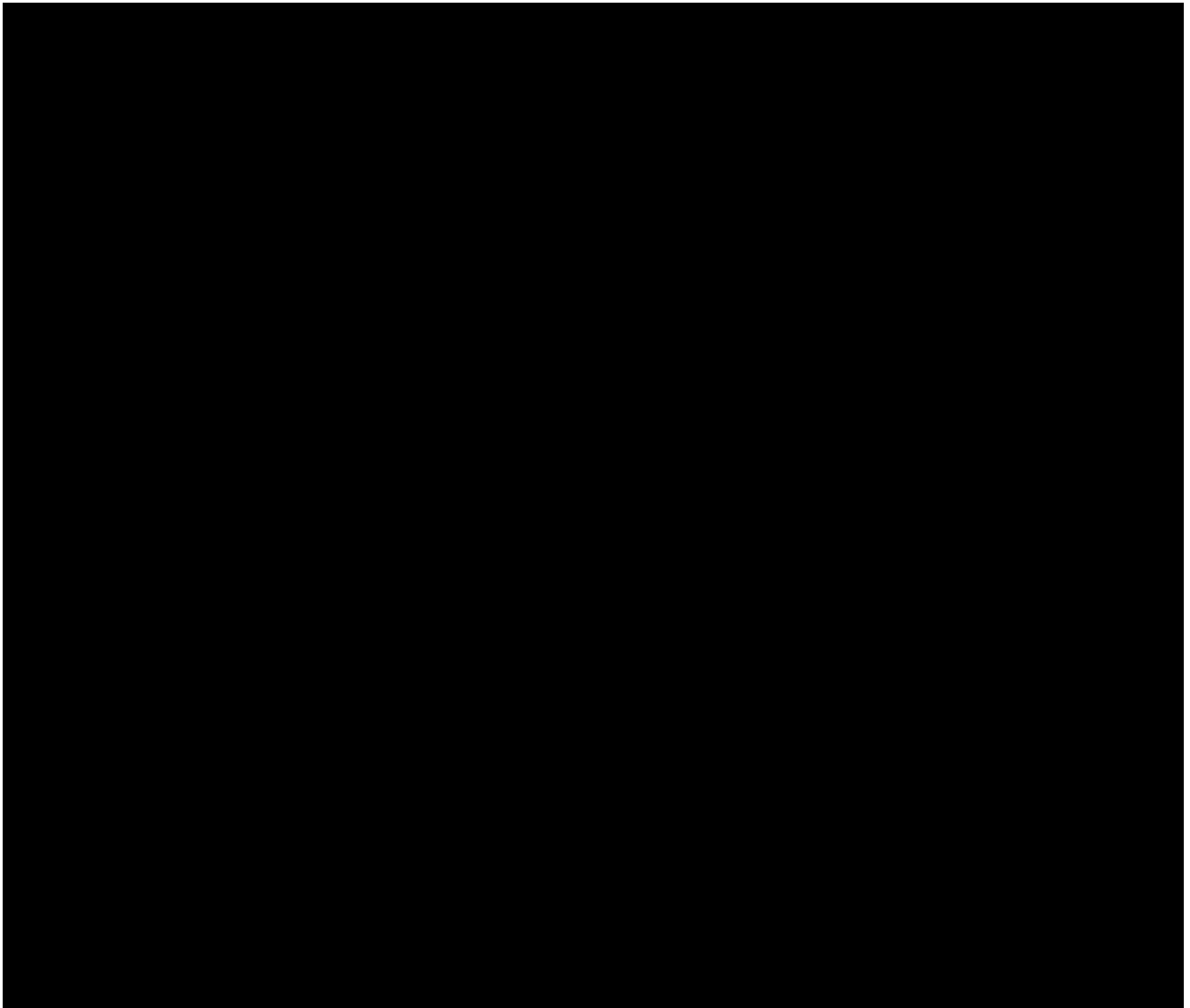


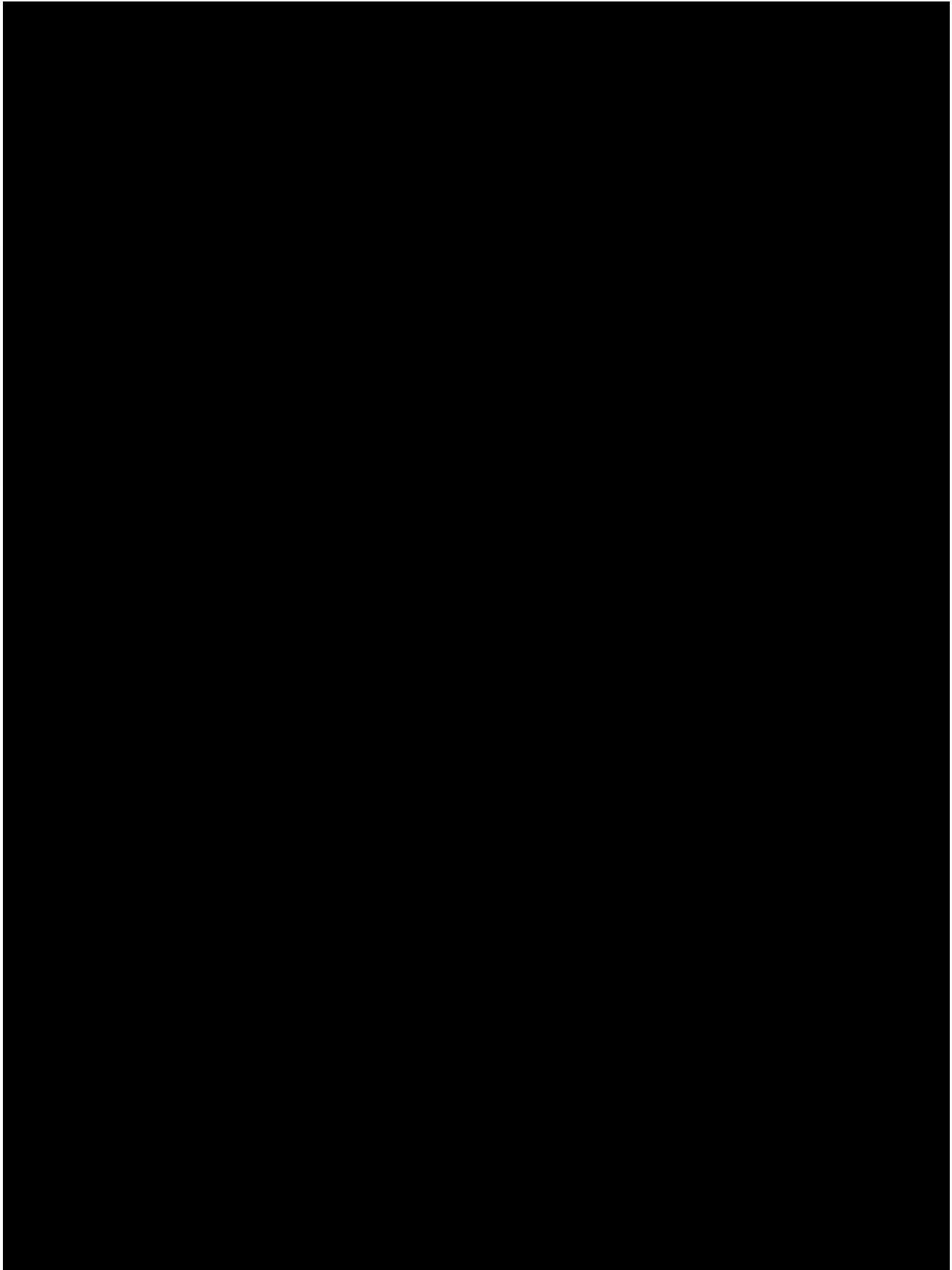


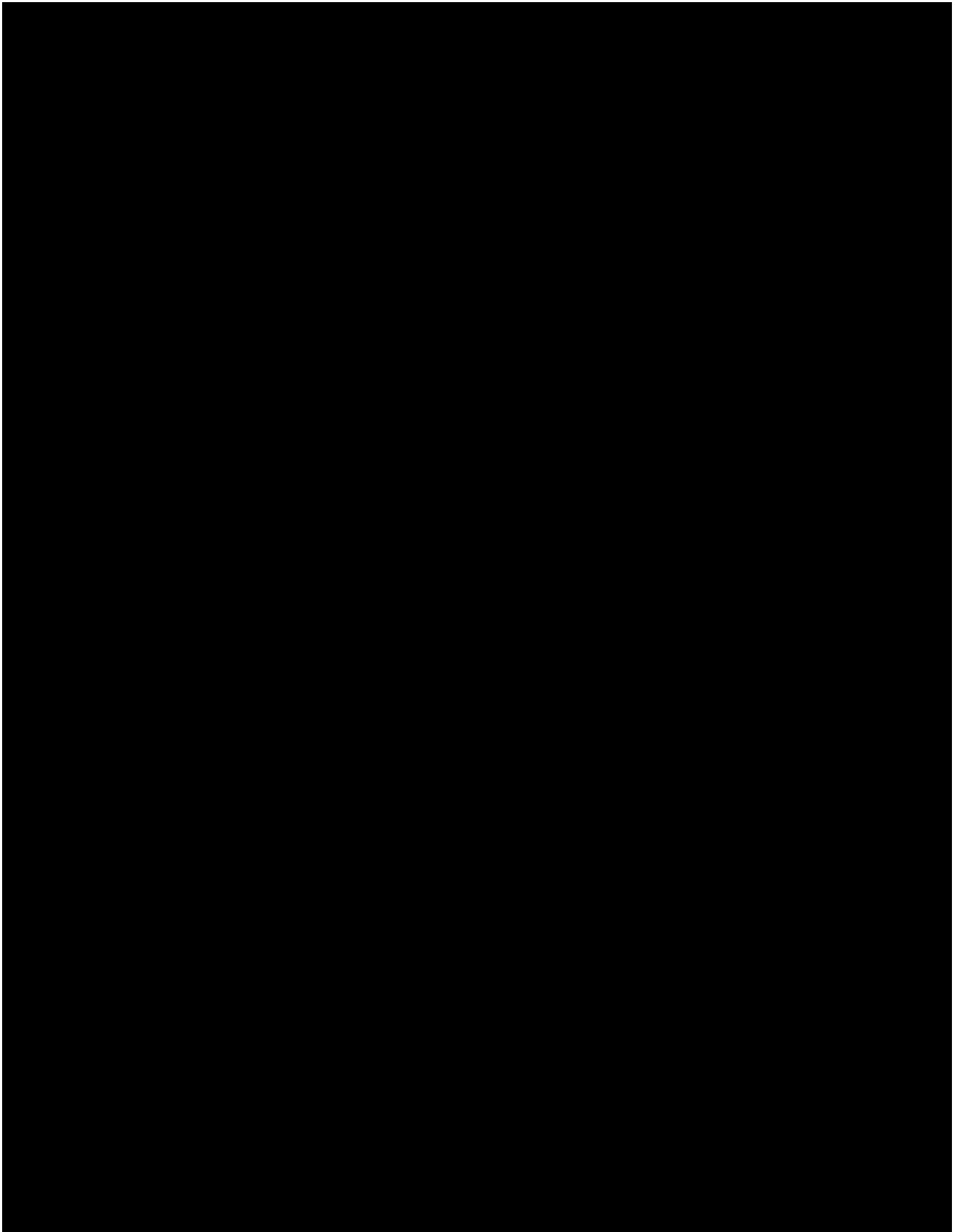


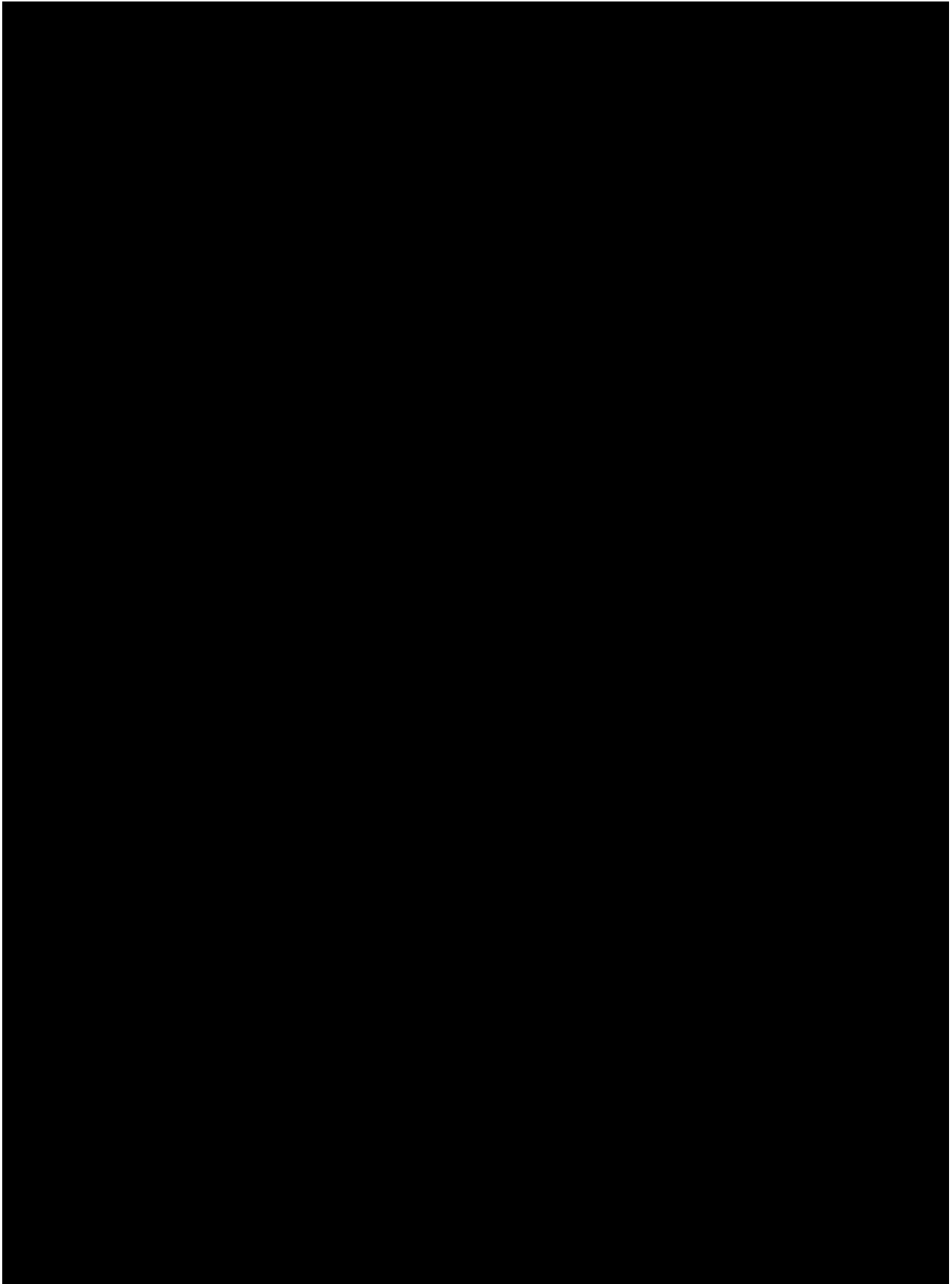








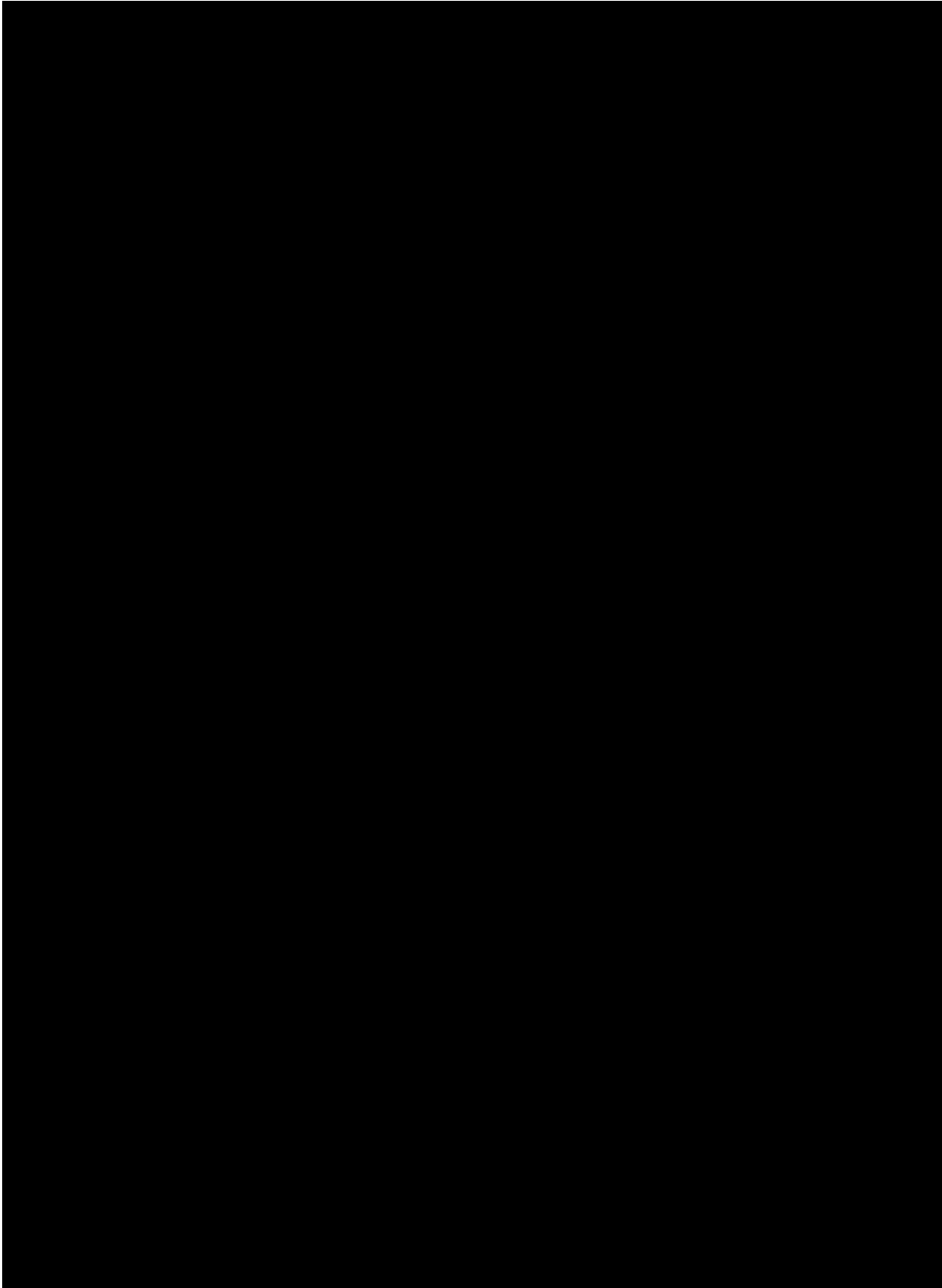






Extensive Experience and History of Innovation in Transit Technology
INIT's Extensive Experience and History of Innovation in Transit Technology

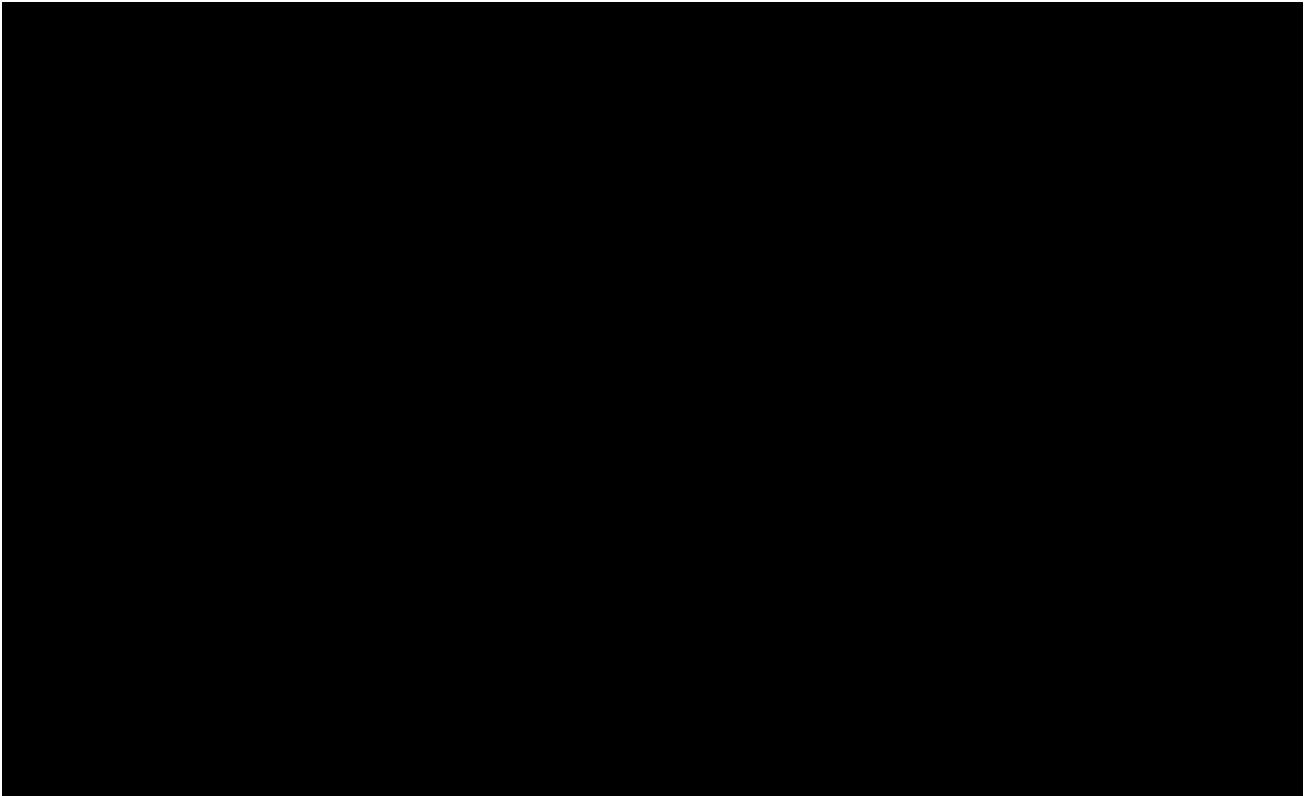




3.6 INIT and Our High-Performance Partners' Organizational Structure

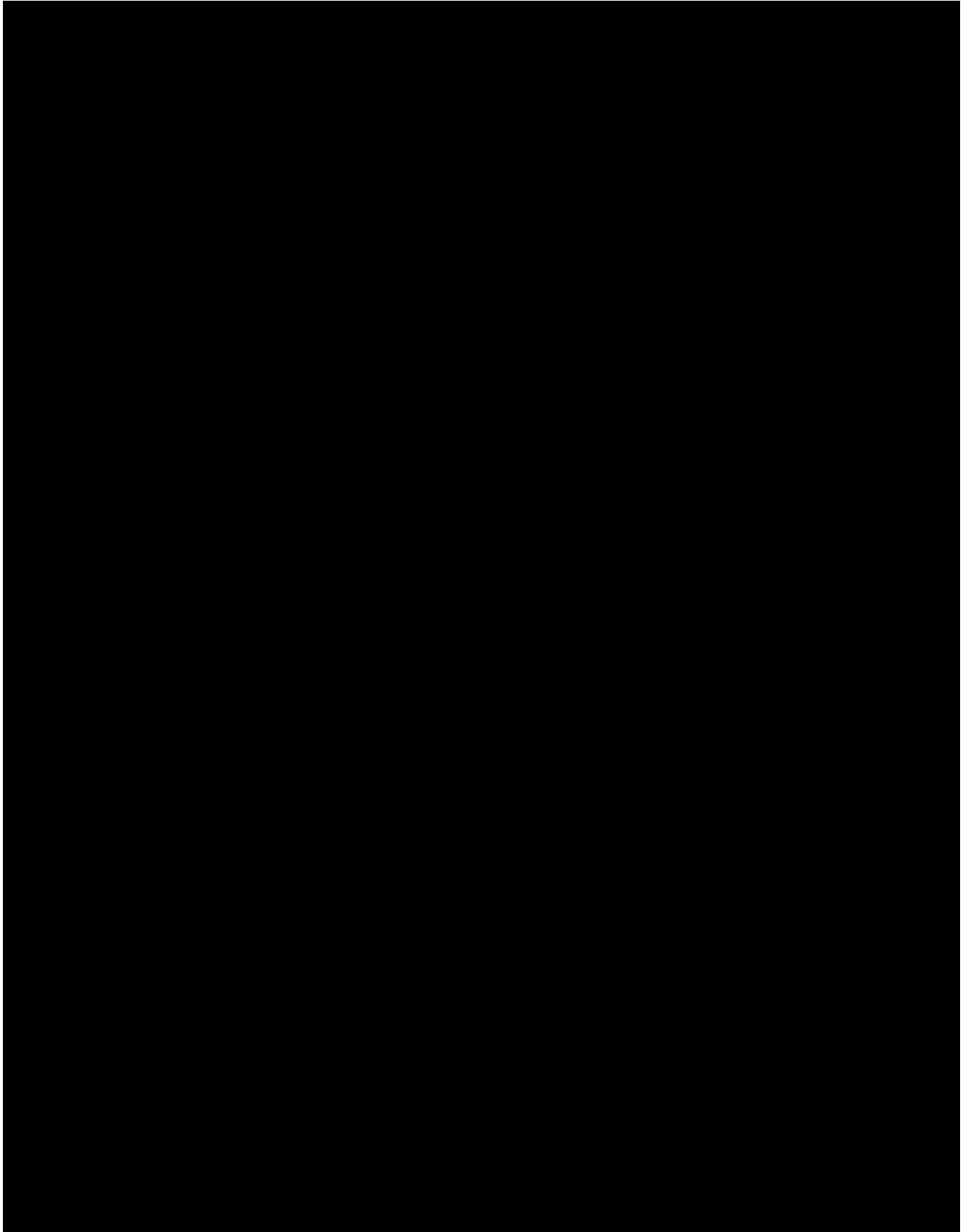
INIT has included our subcontractors in the organizational chart provided in Section 2 of our proposal where we show the relationship between the team leads and the subcontractors. Subcontractors are clearly marked with green banners.

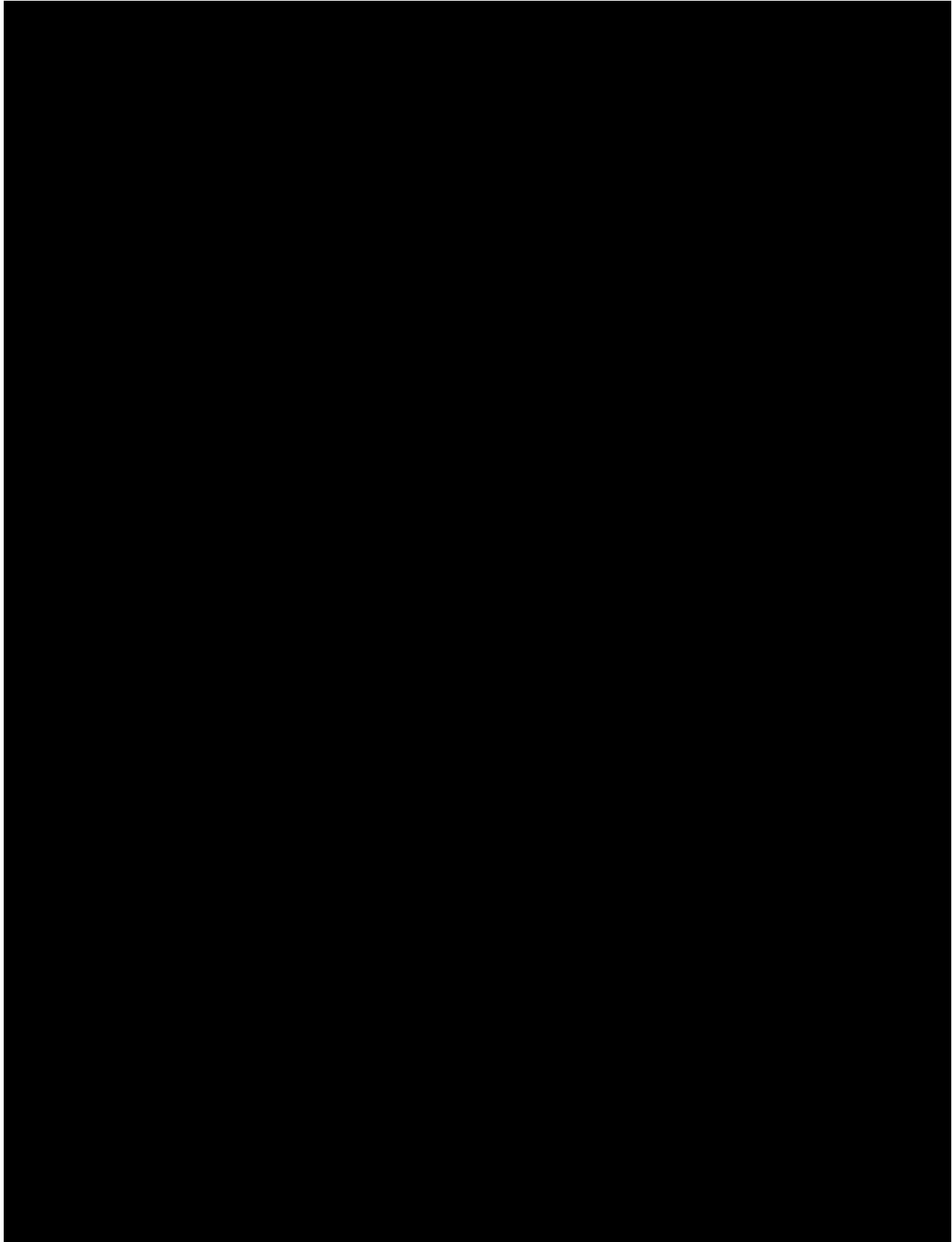
3.7 INIT's Financial Performance

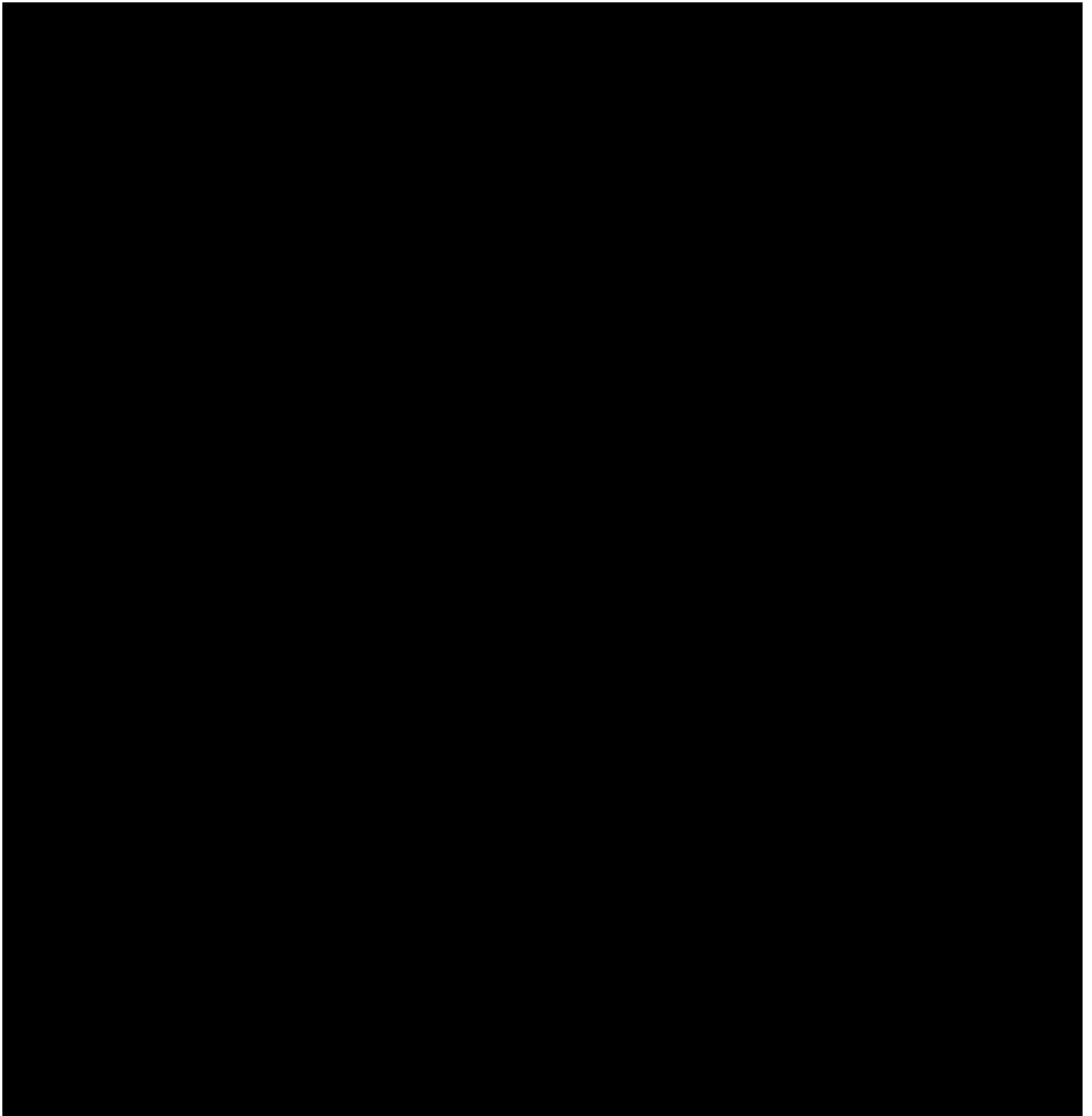


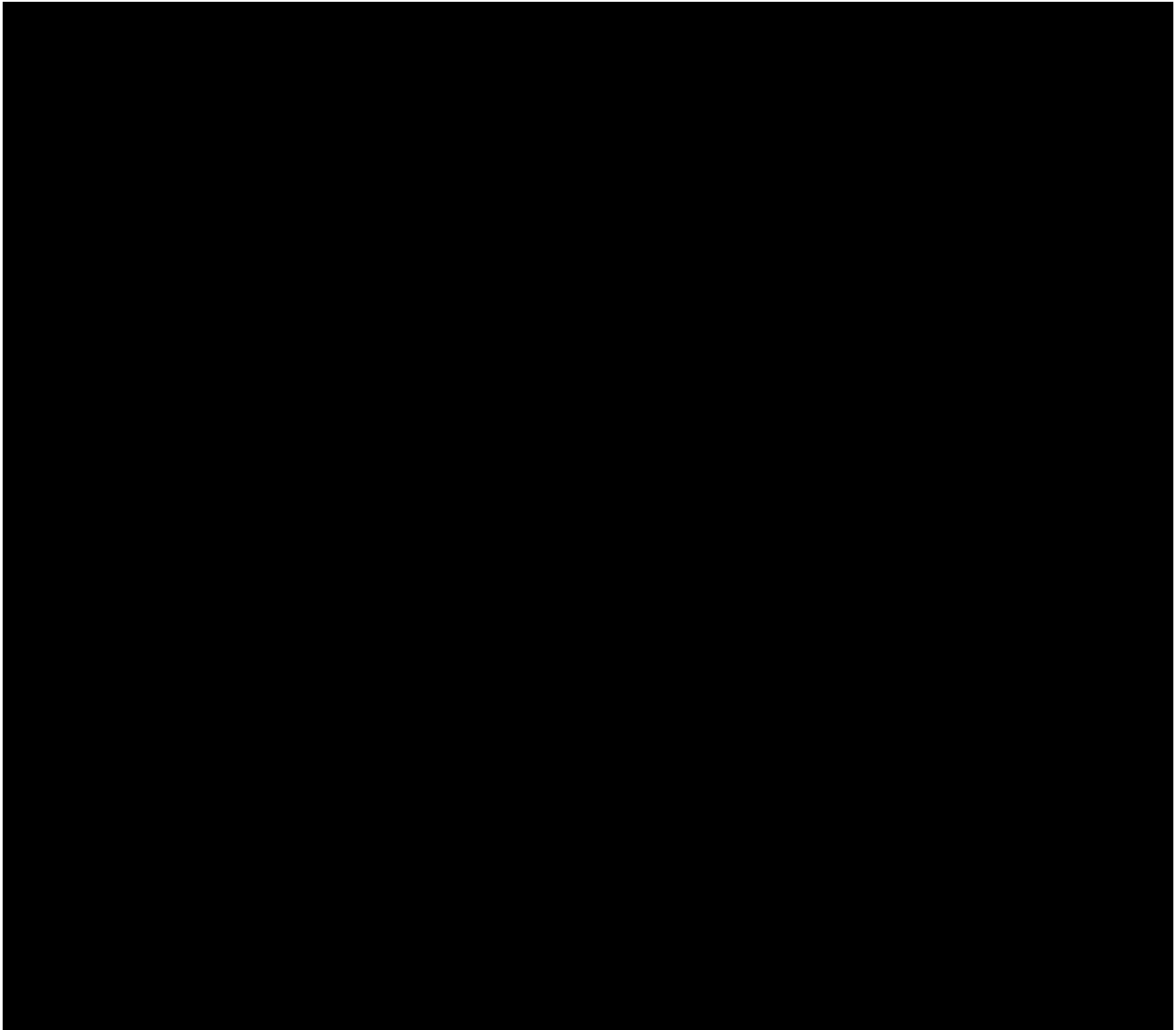


3.8 INIT's Recent Fare Collection Wins









3.9 INIT's Experience in State-of-the-Art Automated Fare Collection Services, Features and Functionality

INIT's account-based MOBILE-EFM system is designed with Open Payments included in the base system. With Open Payments, customer can use their contactless credit cards or mobile wallets like Apple Pay, Android Pay and Samsung Pay to purchase their ticket right at the validator. No need to get a card, download an App or search for change. This lowers the entry barrier to use public transit tremendously and makes it especially easy for non-frequent riders like tourists.

They can simply use a preferred payment medium that they already possess, and they don't have to worry about potentially unused credit balances. The benefit to the ORCA agencies are savings of the administration costs of media inventory and the complex accounting management of remaining credit balances.

The AFC system proposed for the ngORCA project will include Open Payments functionality and we are proposing Open Payments be implemented in Phase One of the project.

INIT has successfully deployed Open Payment at TriMet in Portland with deployment scheduled for Birmingham, England soon.

INIT's Knowledgeable and Experienced Team

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal June 8, 2018



init

The Future of Mobility

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The sections listed below contain trade secret information that provides a business advantage to INIT over competitors. These sections are proprietary and confidential and must not be disclosed except to agency employees directly concerned in evaluating INIT's response to RFP No. RTA/RP 0119-17 and third parties retained by the agency who have been retained to assist in the evaluation and then only to the extent they agree to abide by this limitation.

CONFIDENTIAL SECTIONS:

All Personal Information for Team Members and References



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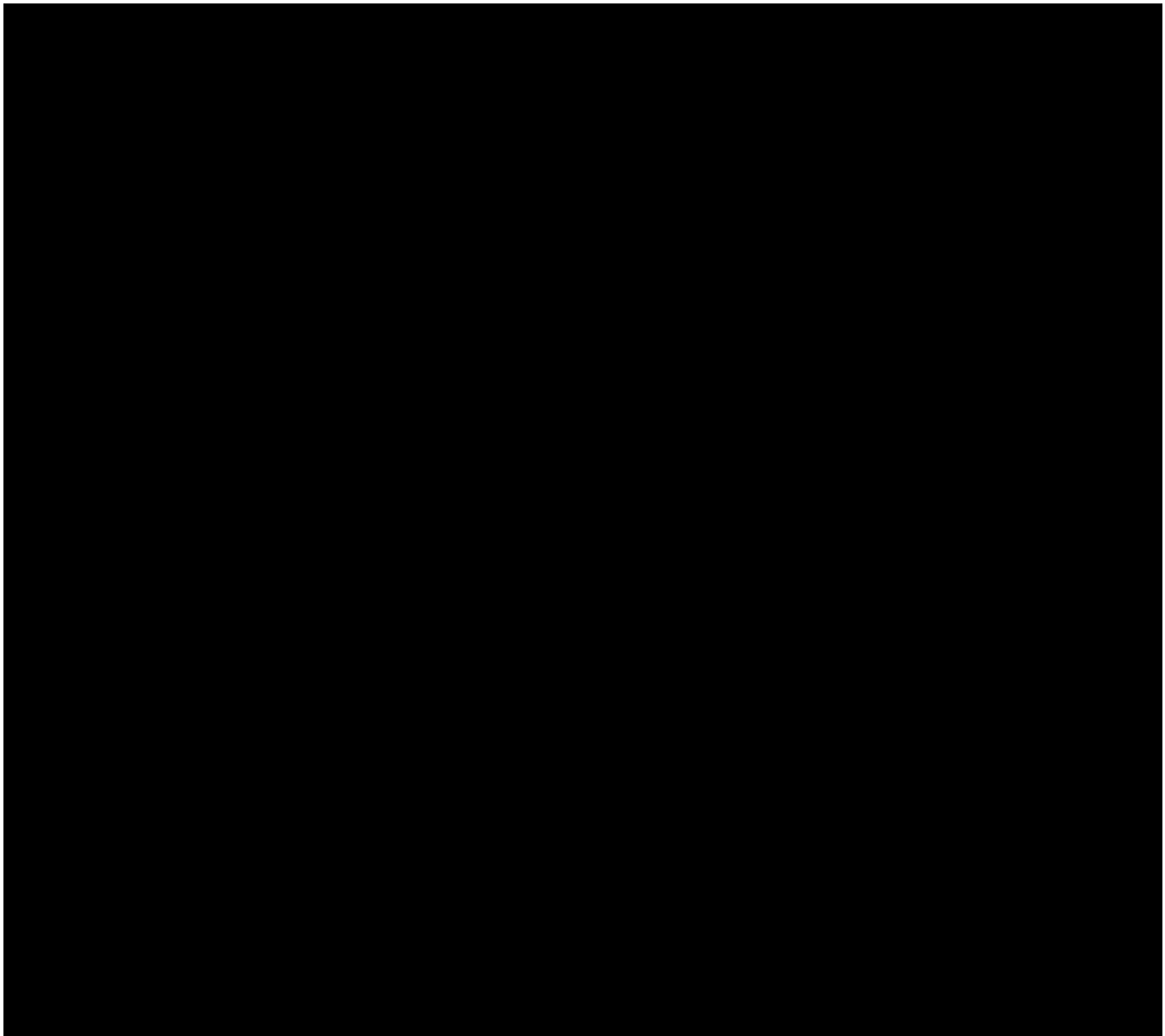


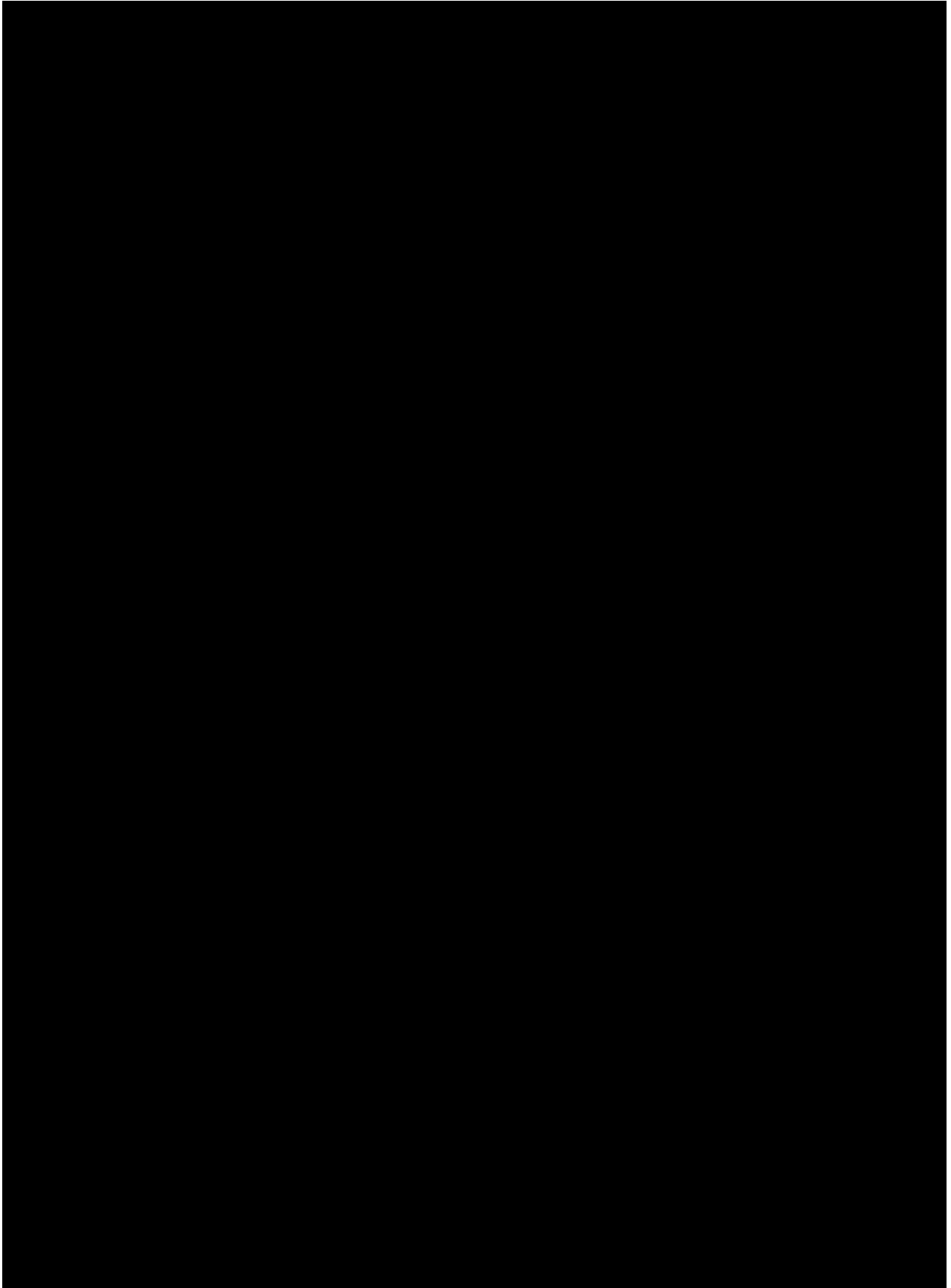
4 INIT's Knowledgeable and Experienced Team

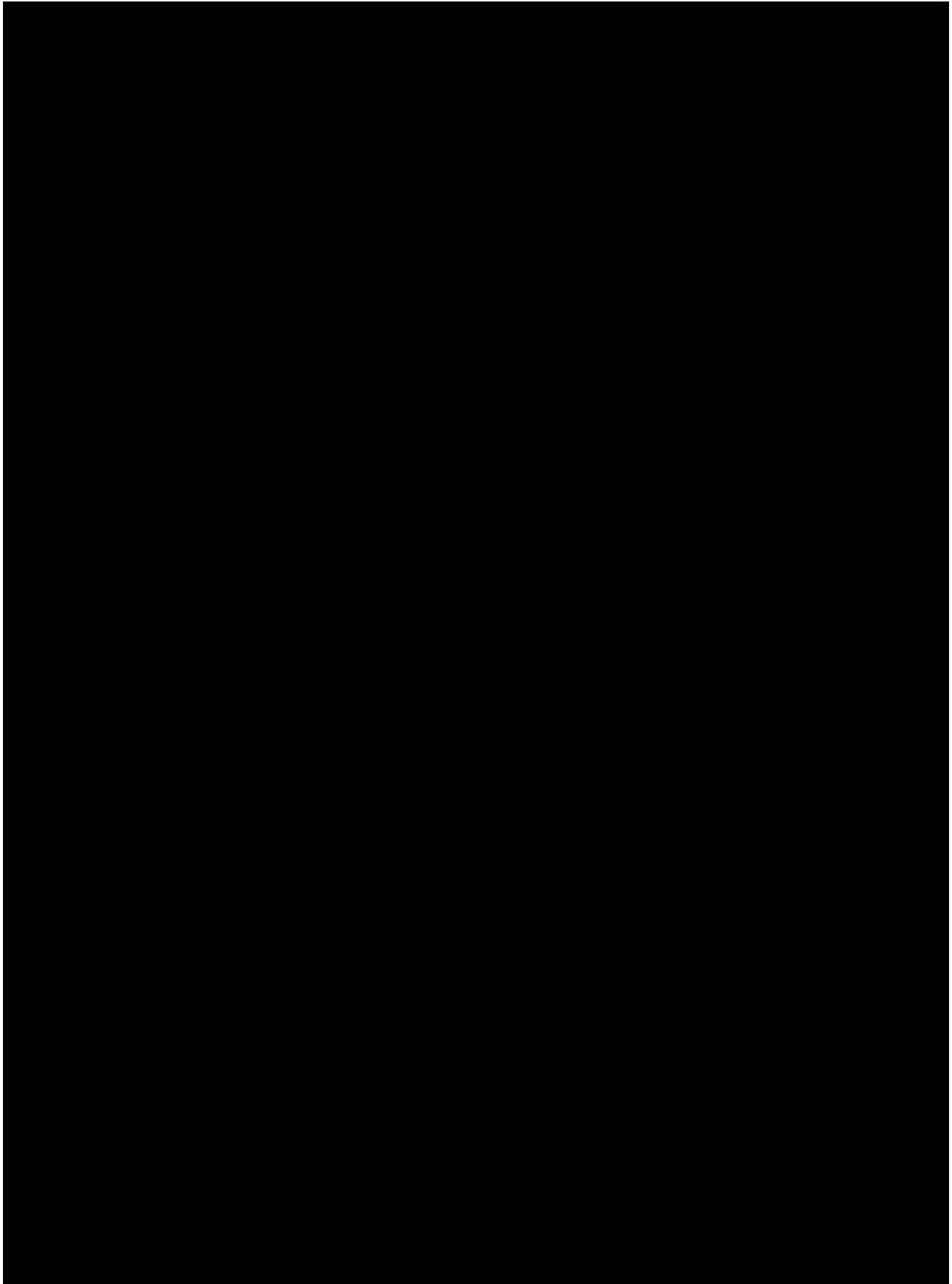
INIT's key personnel are an experienced and accomplished group, with diverse backgrounds coming together to provide an outstanding customer experience for ORCA. INIT truly believes that this is a dynamic team with fare collection experience that will go the extra mile to ensure that the Puget Sound Region's needs are not only met, but exceeded. Below, please see the narratives for all key personnel included in this proposal. A summary of their collective fare collection experience can also be found in this section.

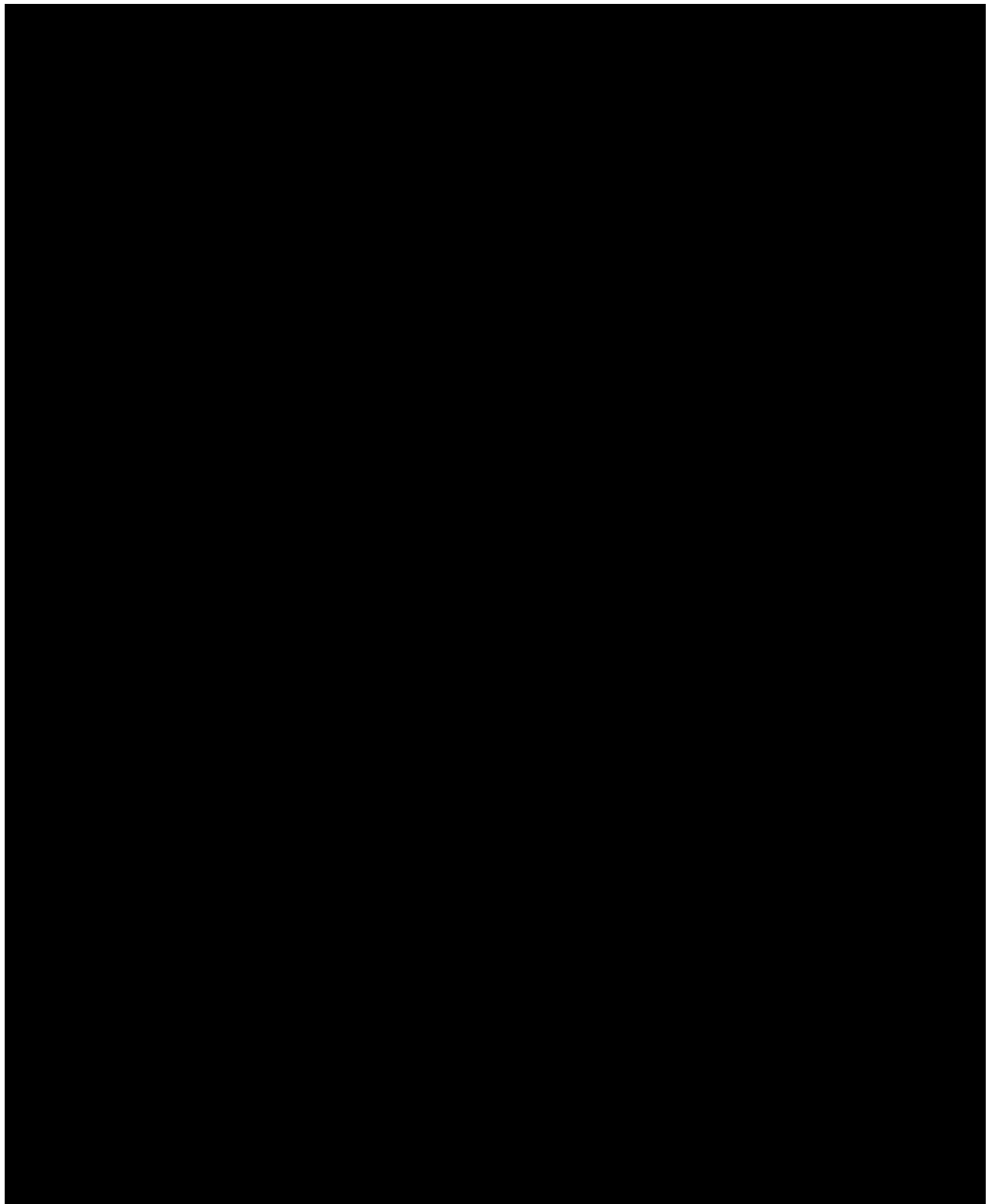
Key Personnel's Full resumes can be found in the Appendix.

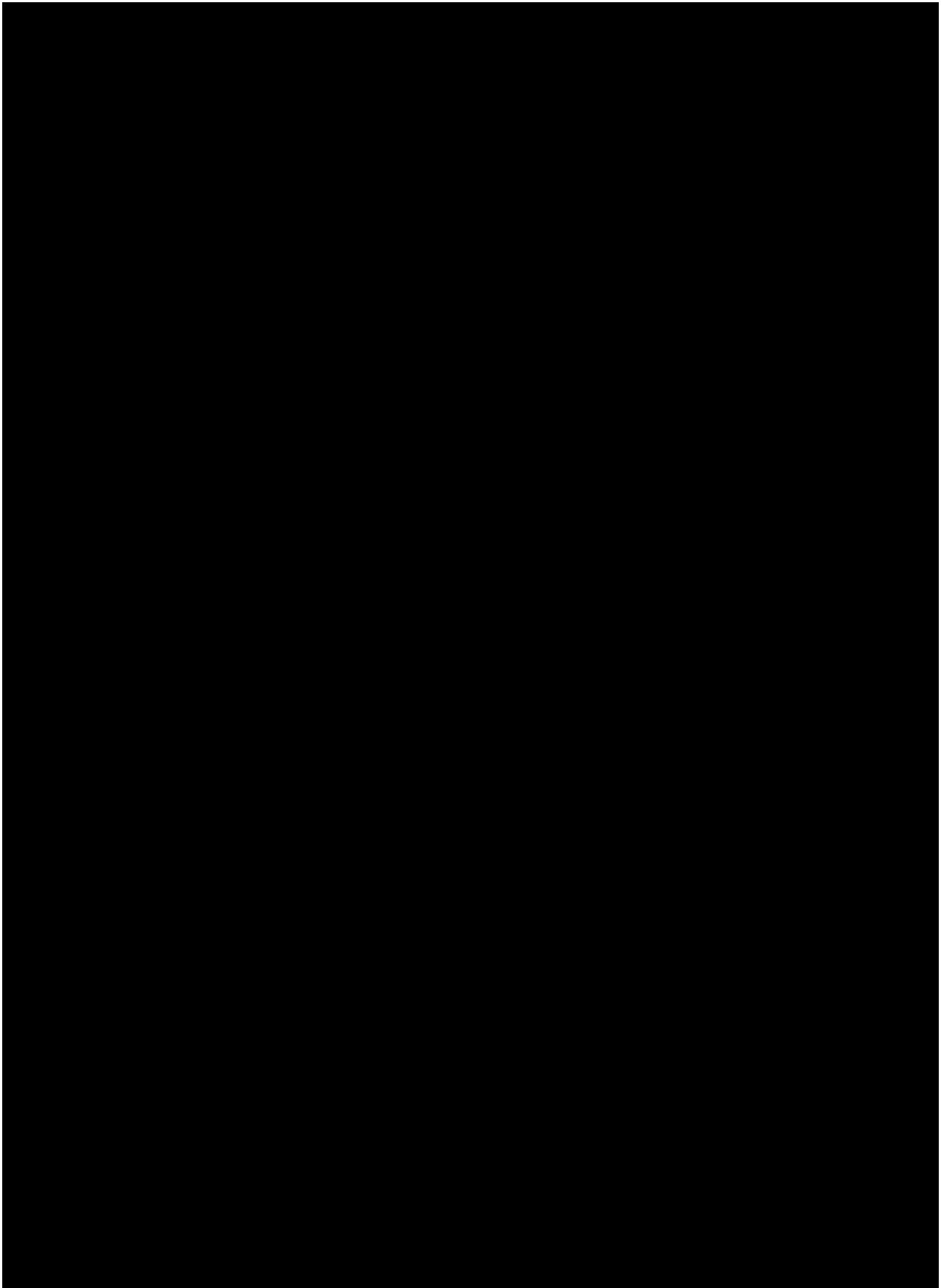
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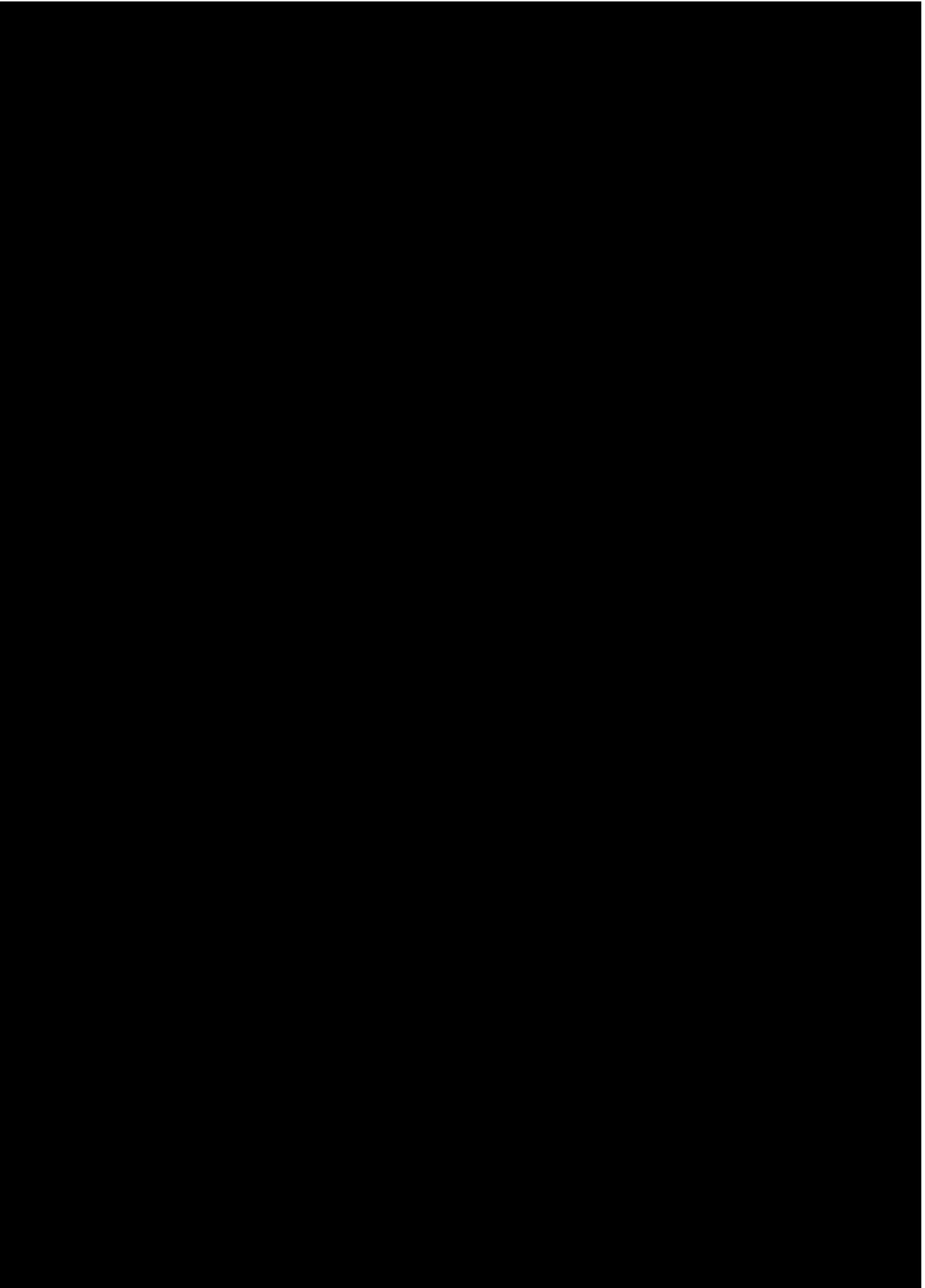


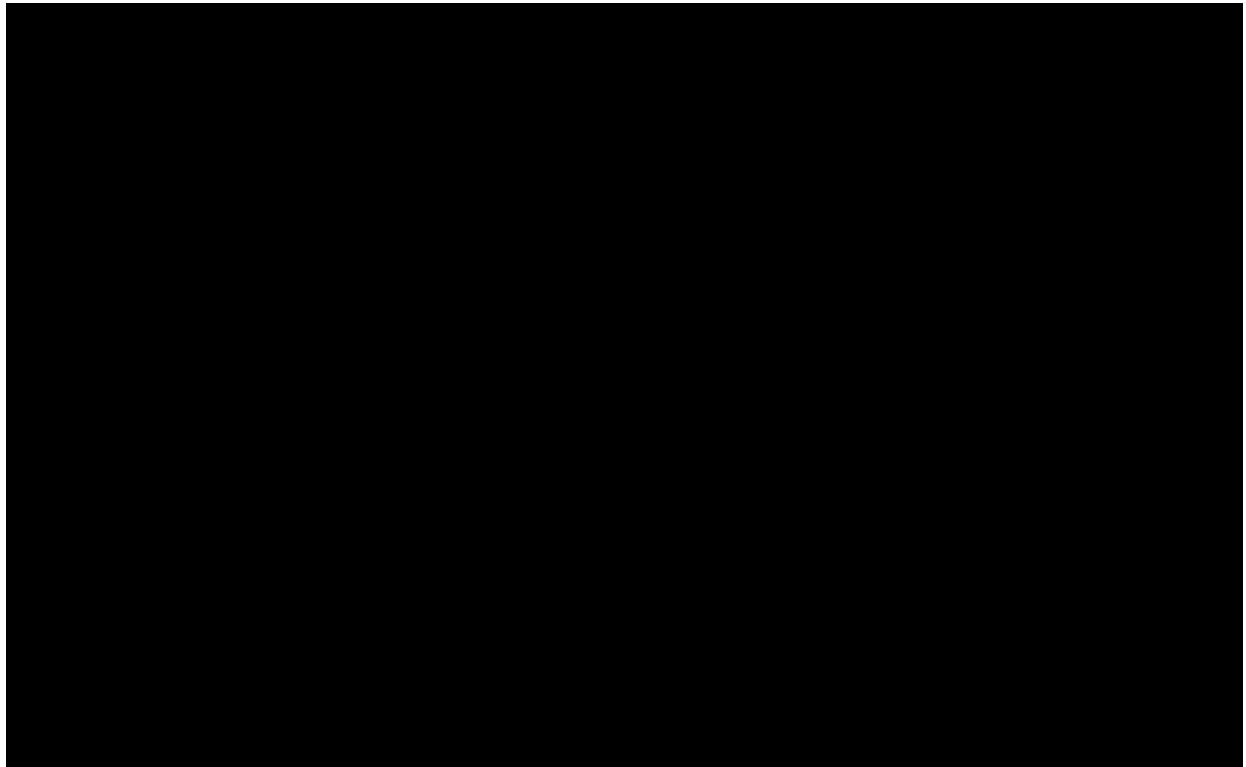


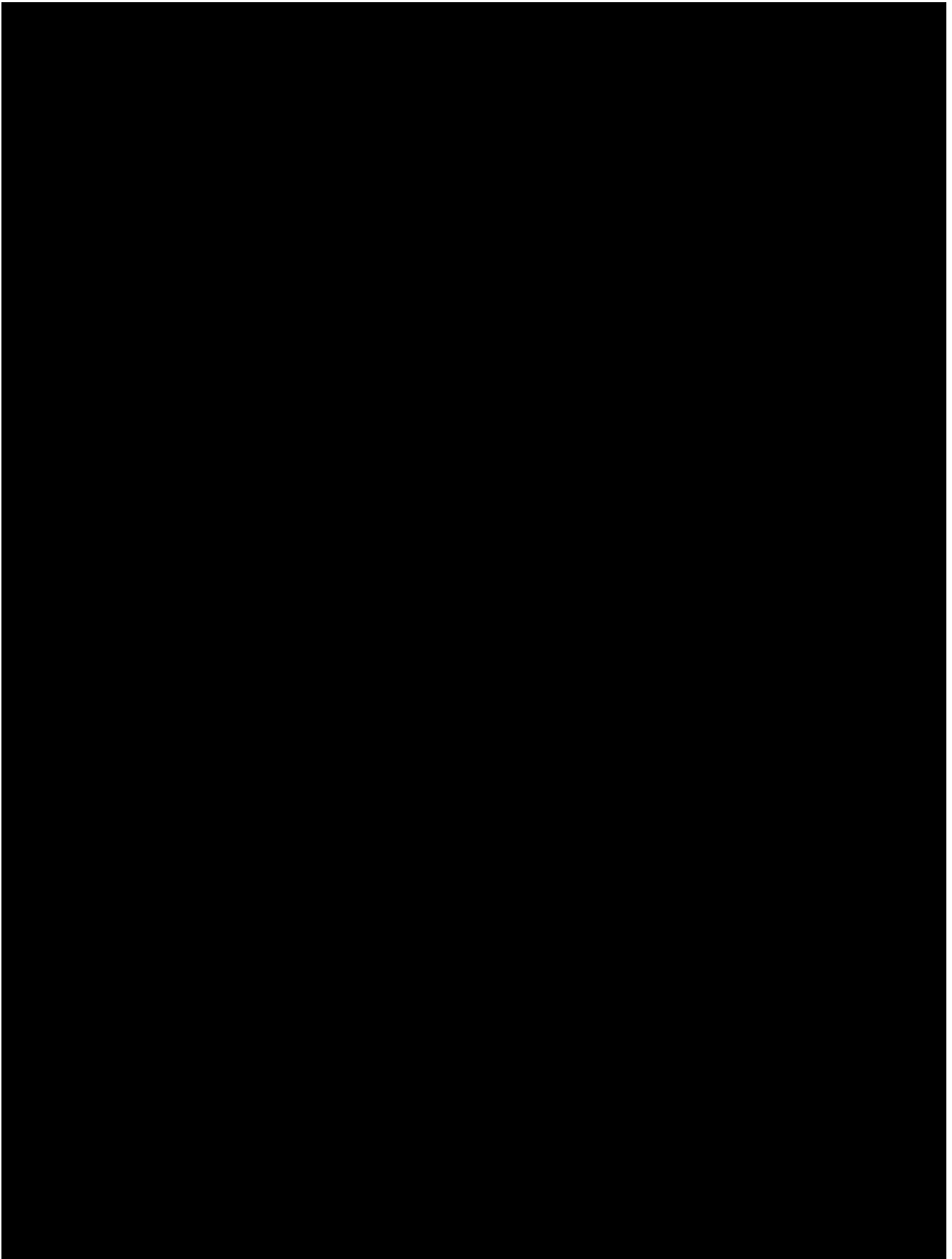


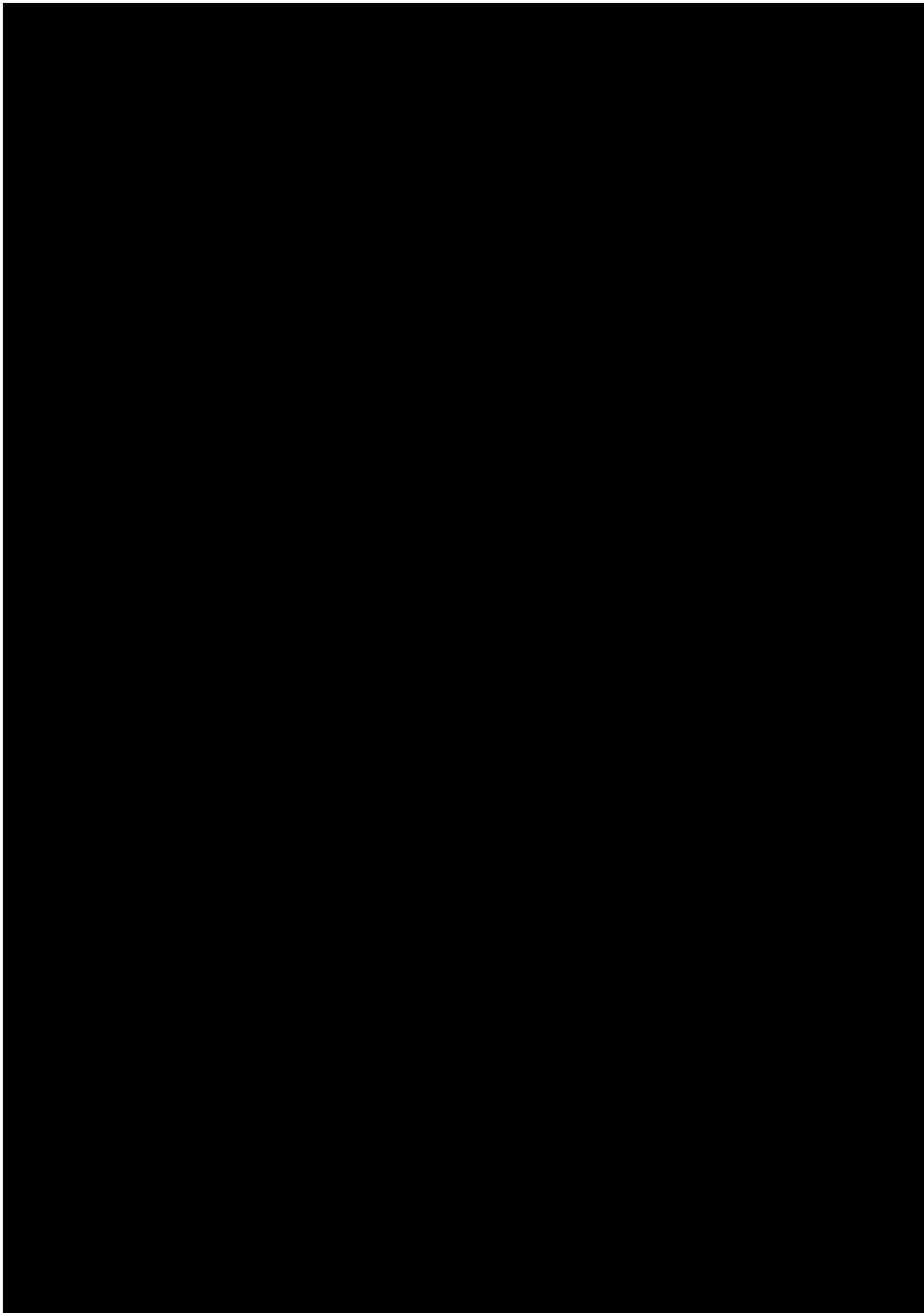


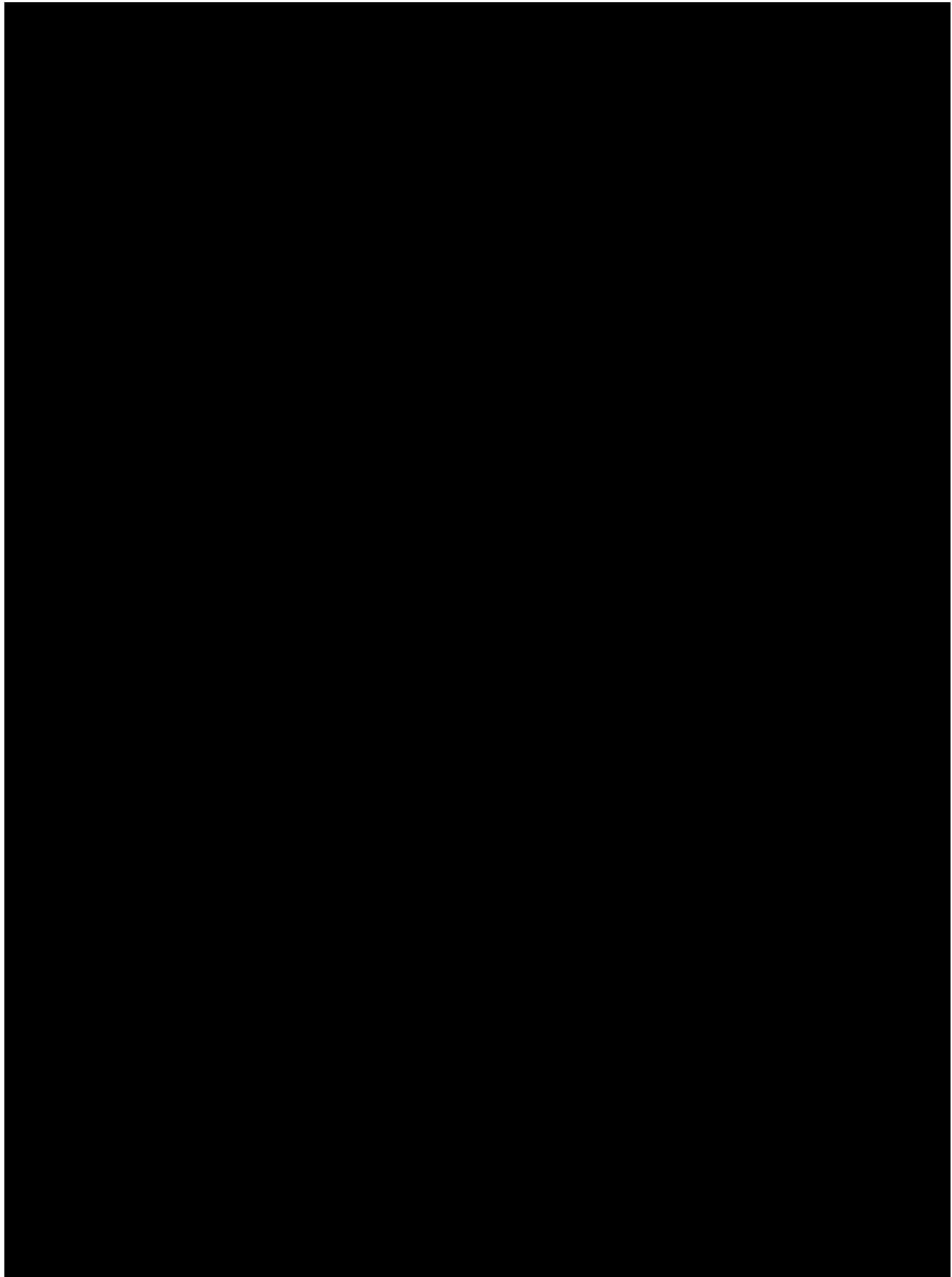


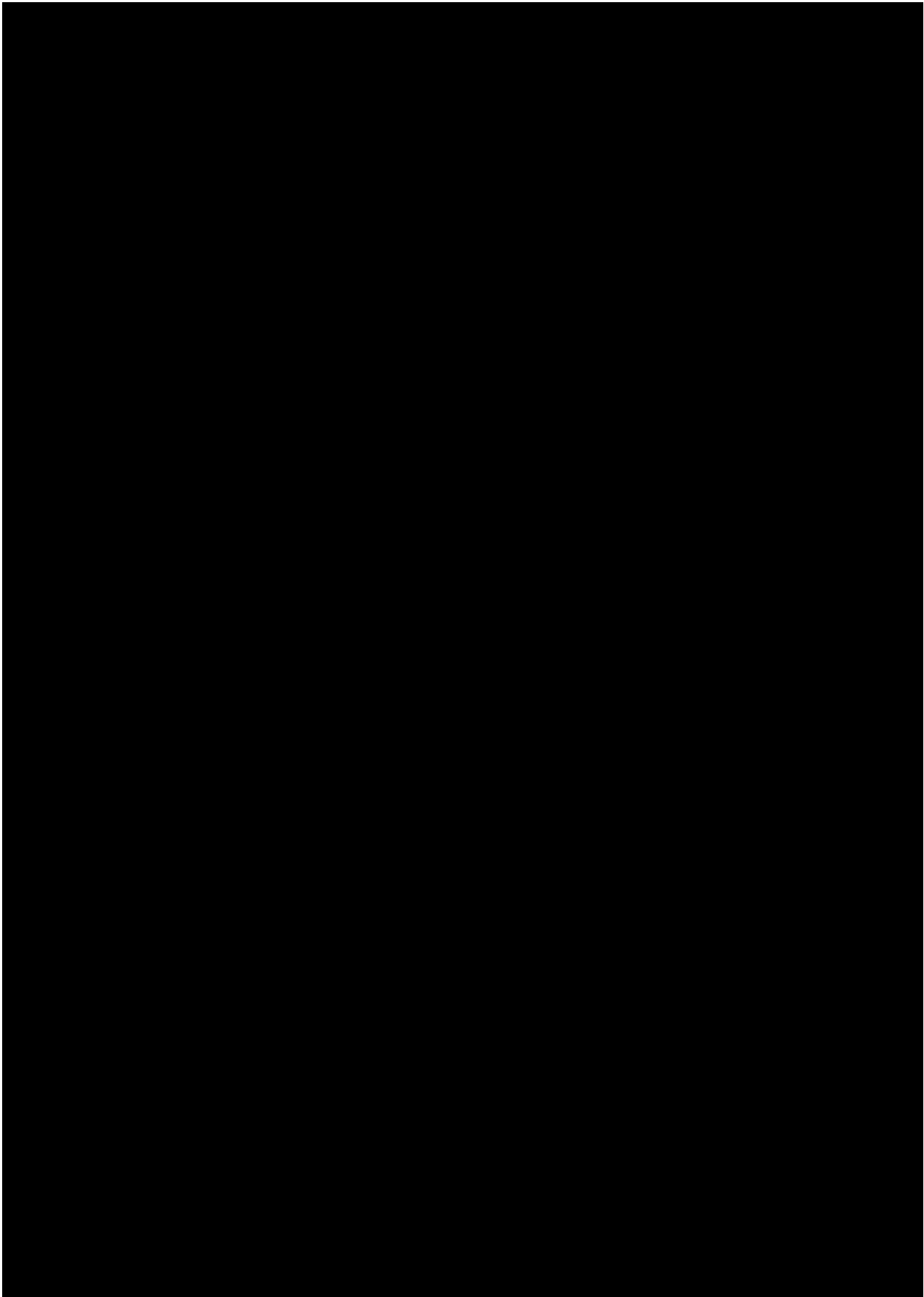




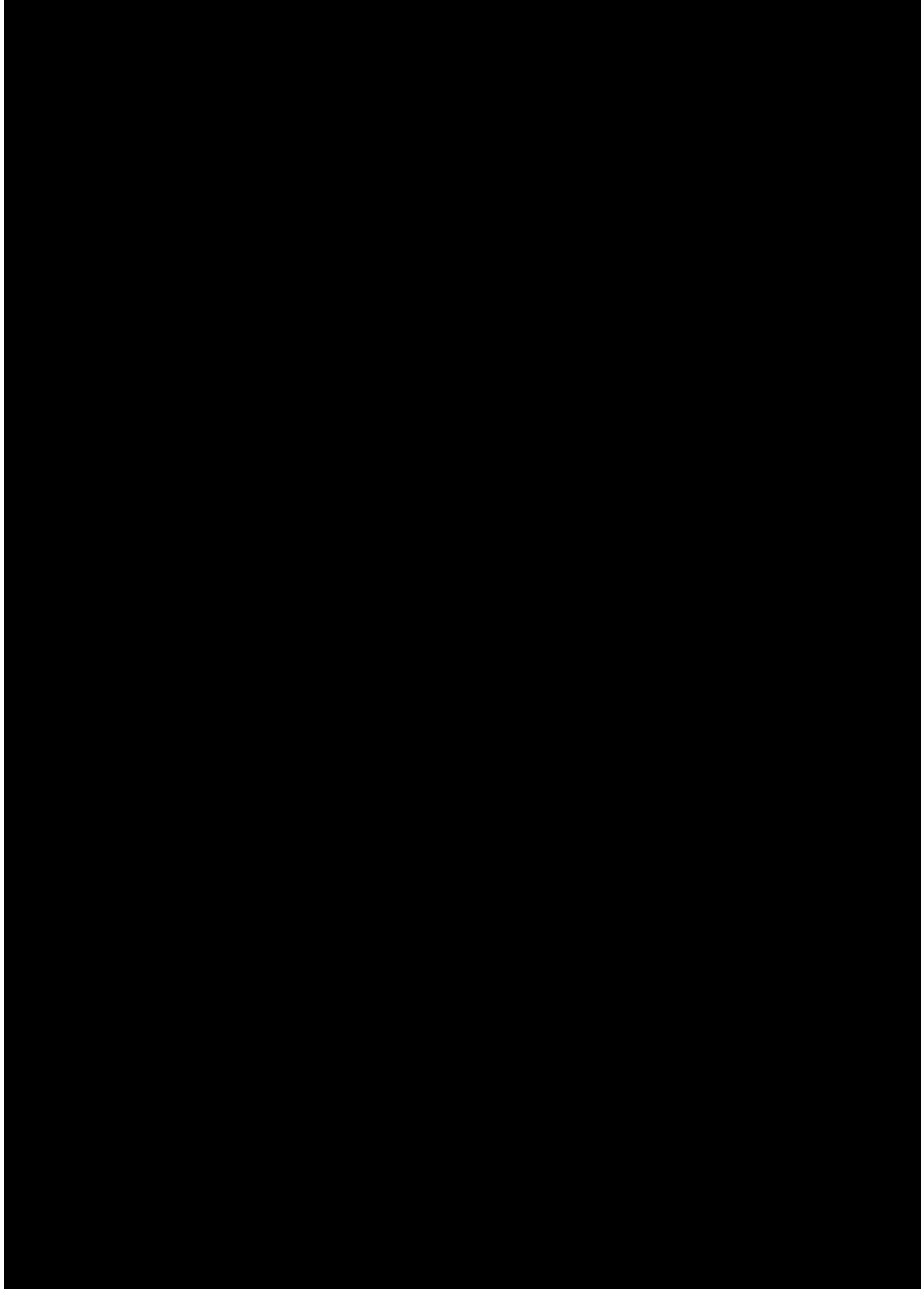






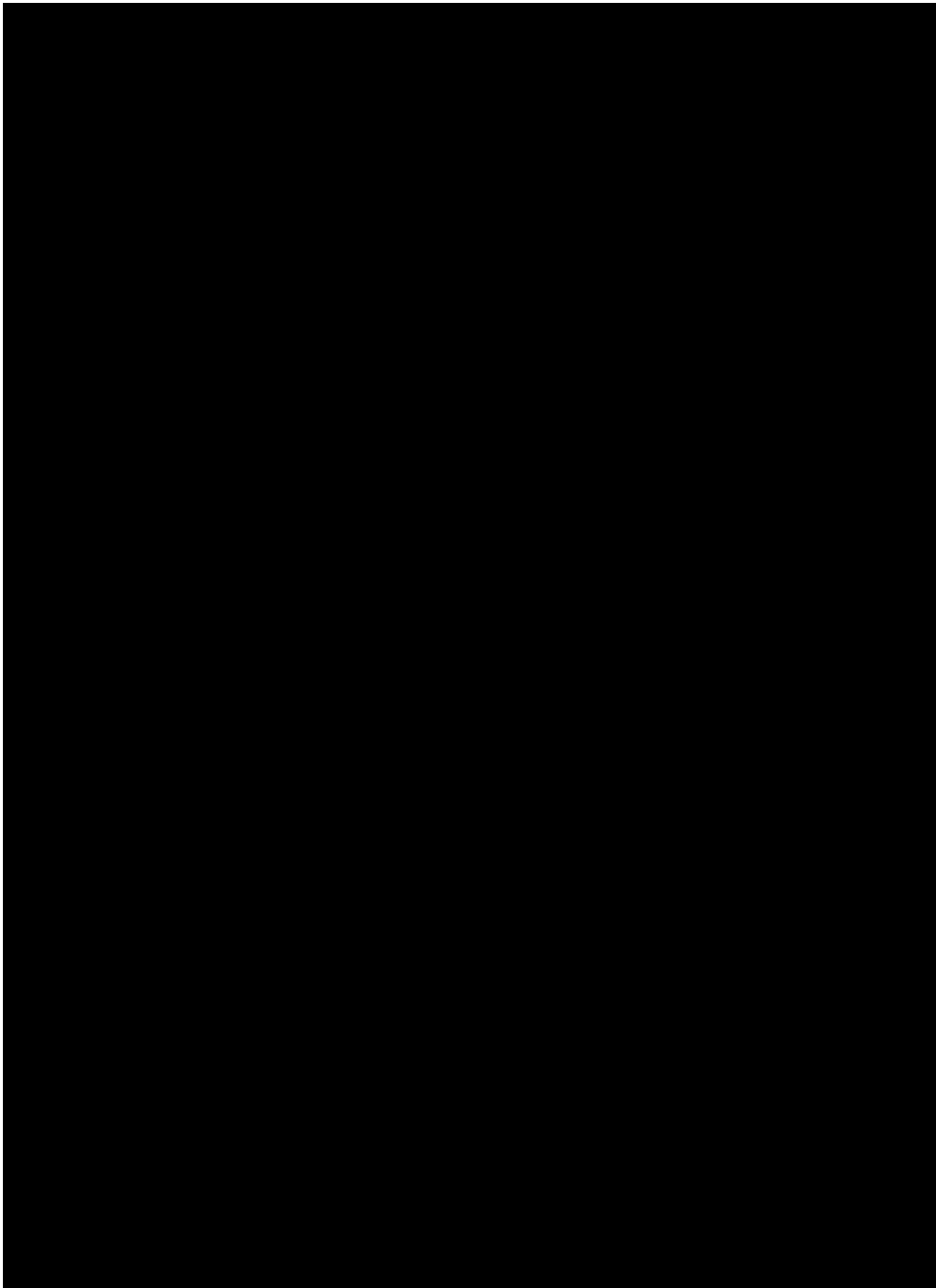


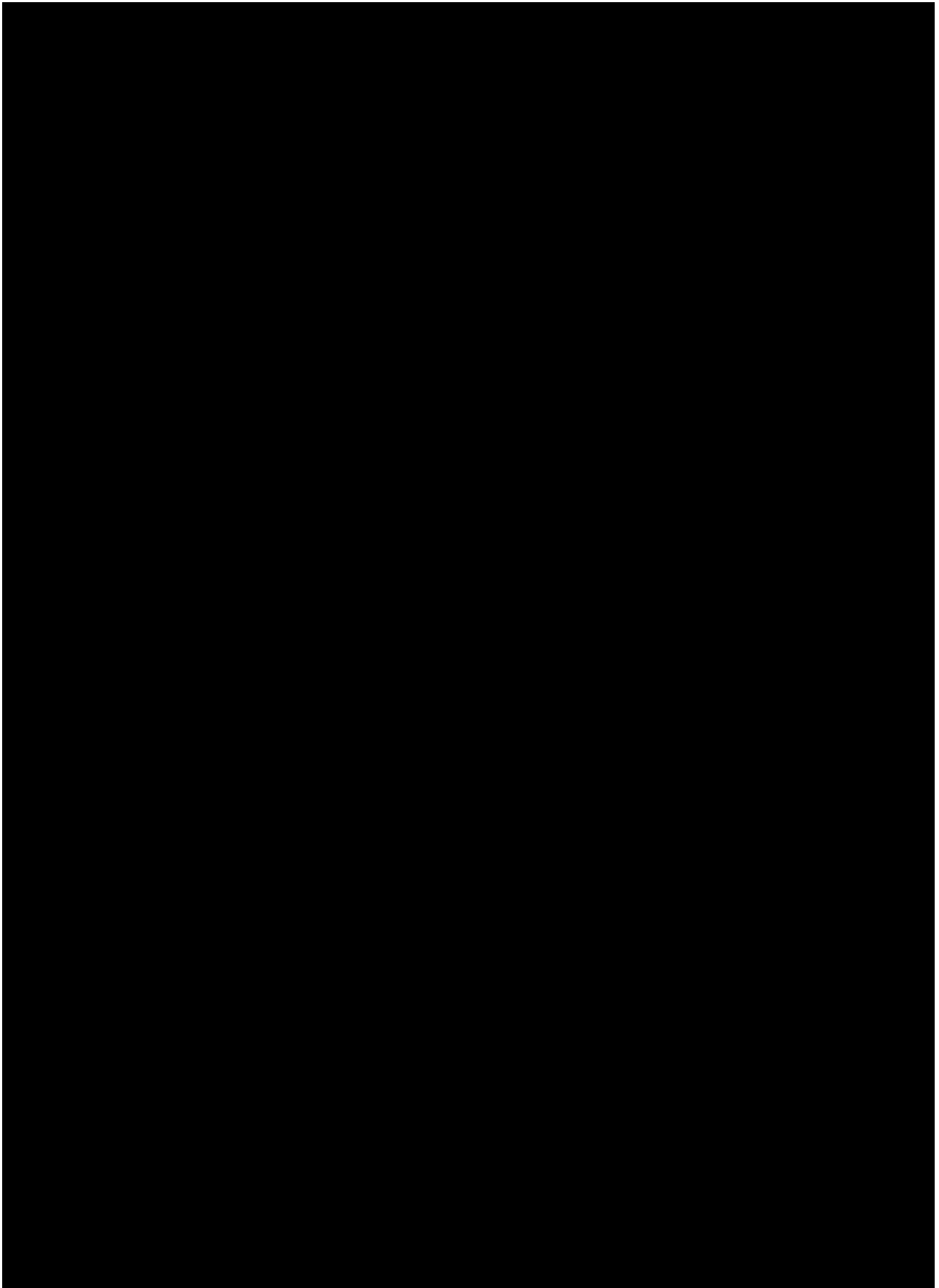


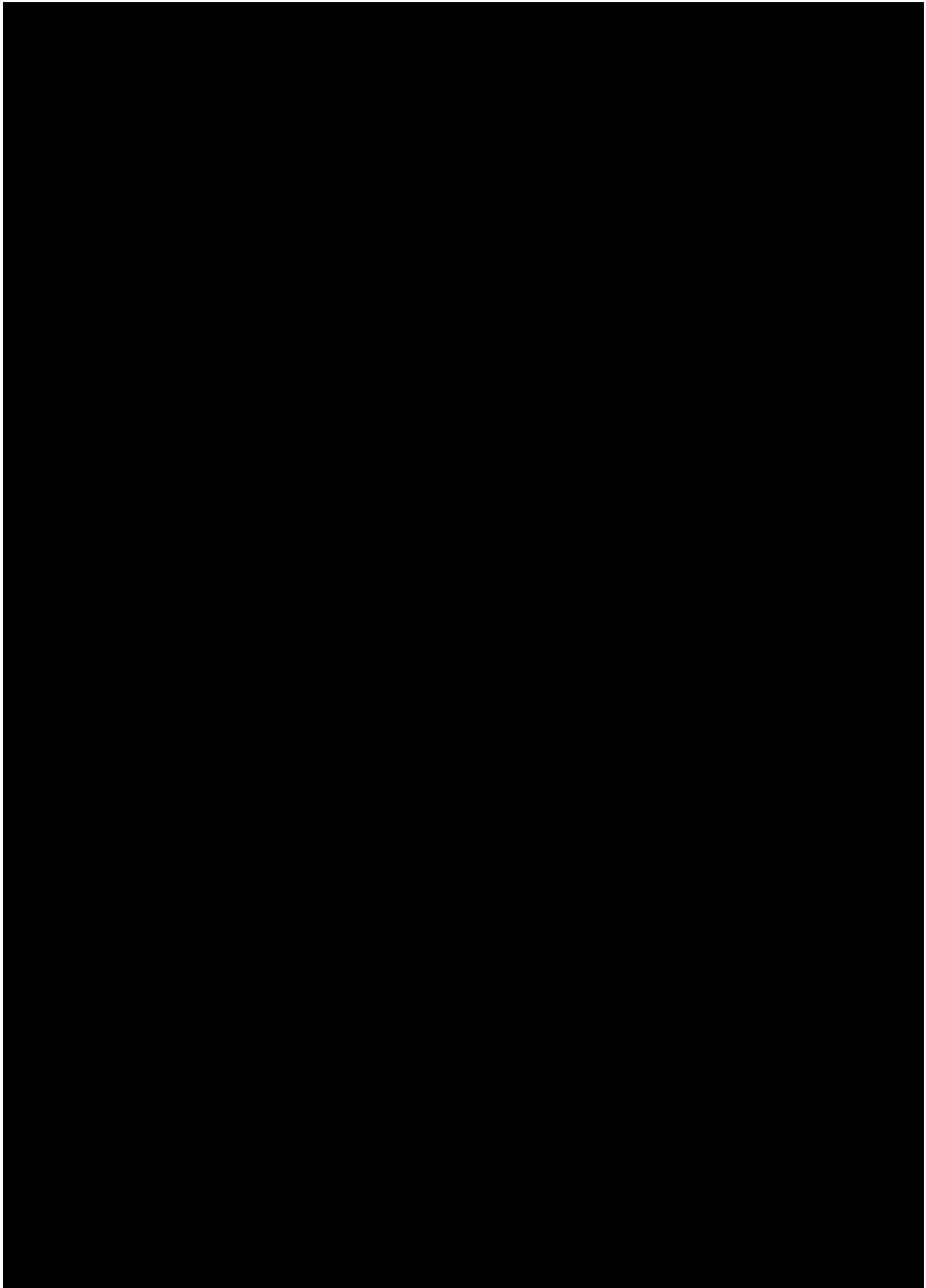


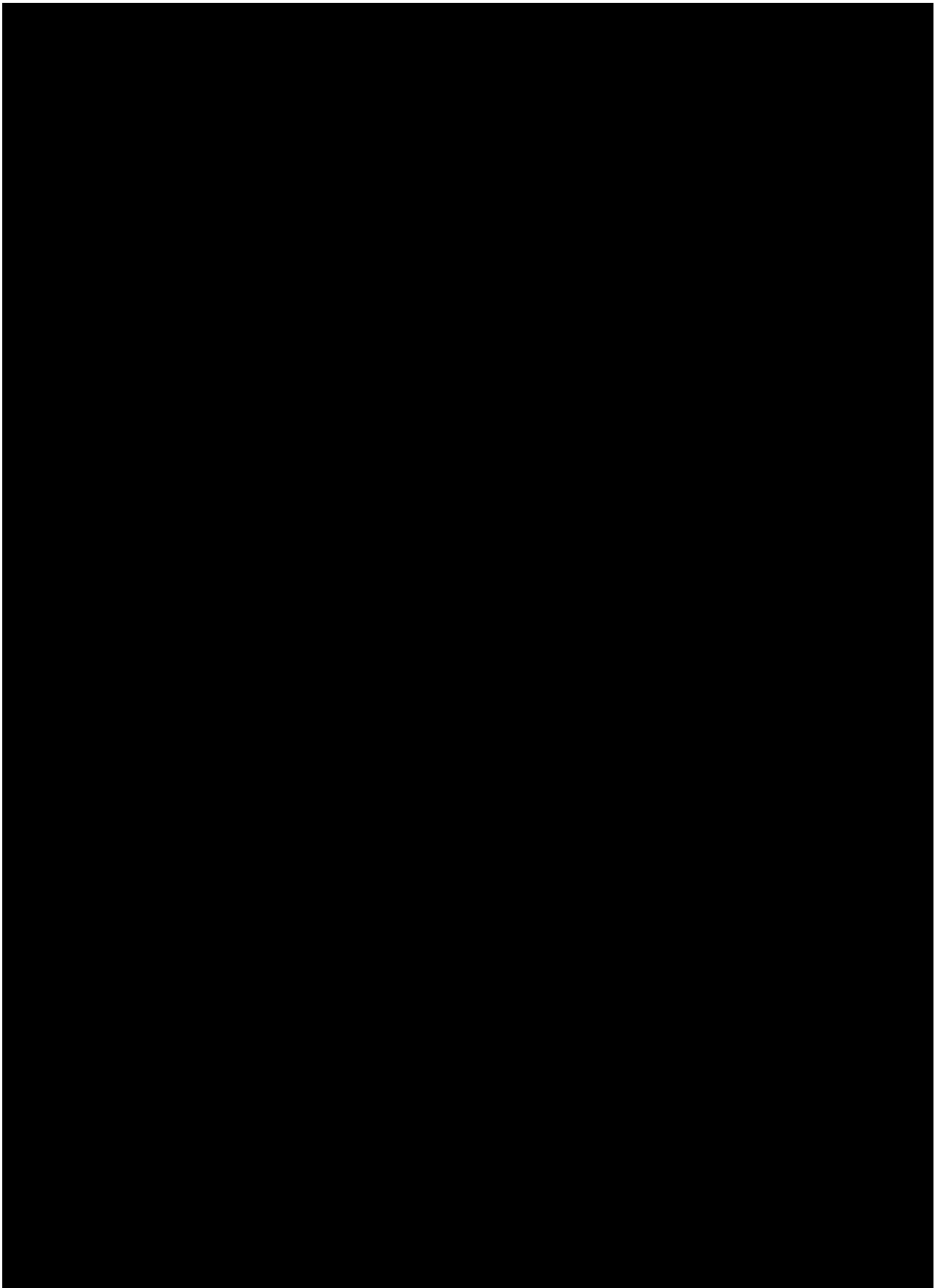


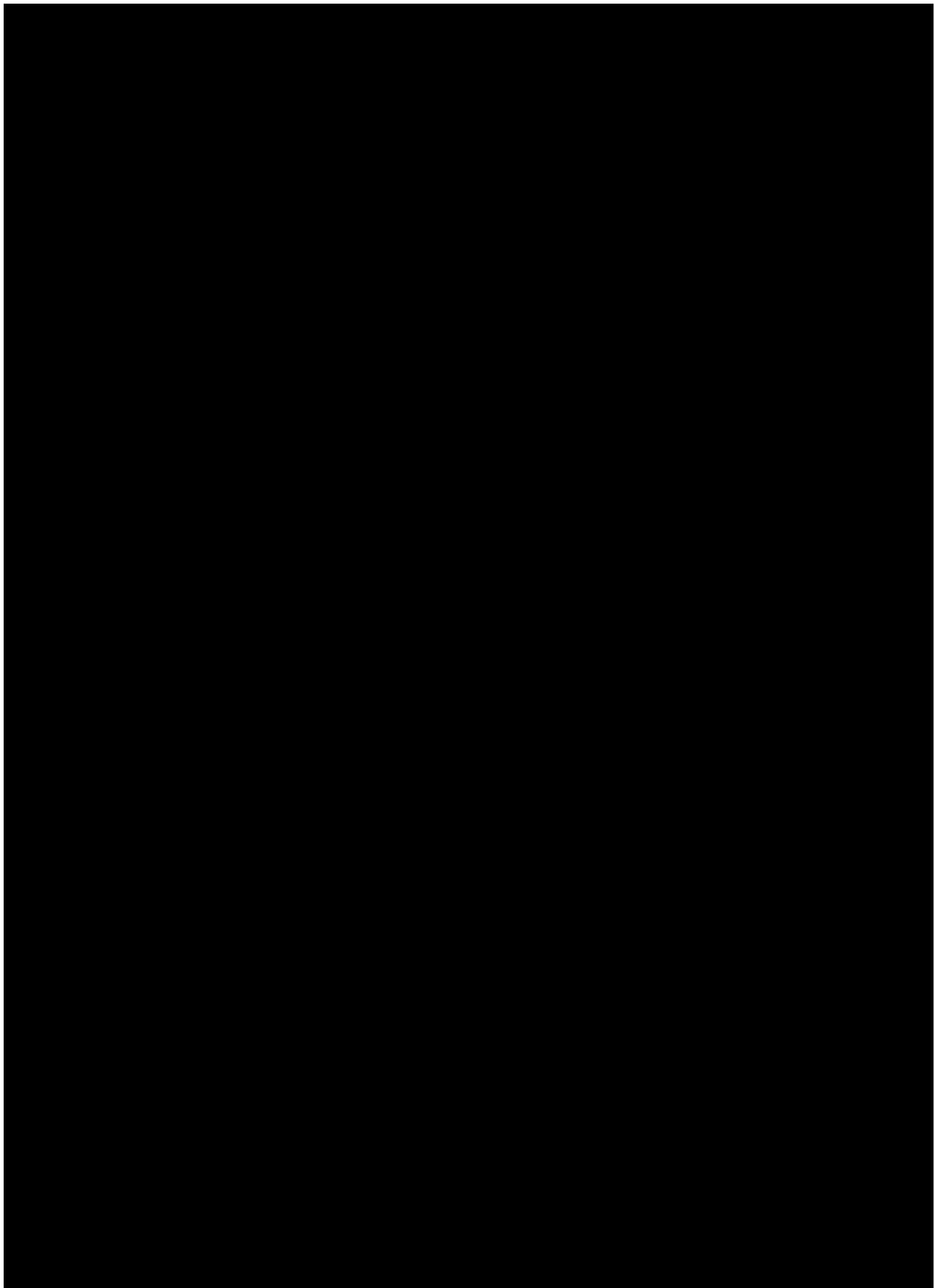


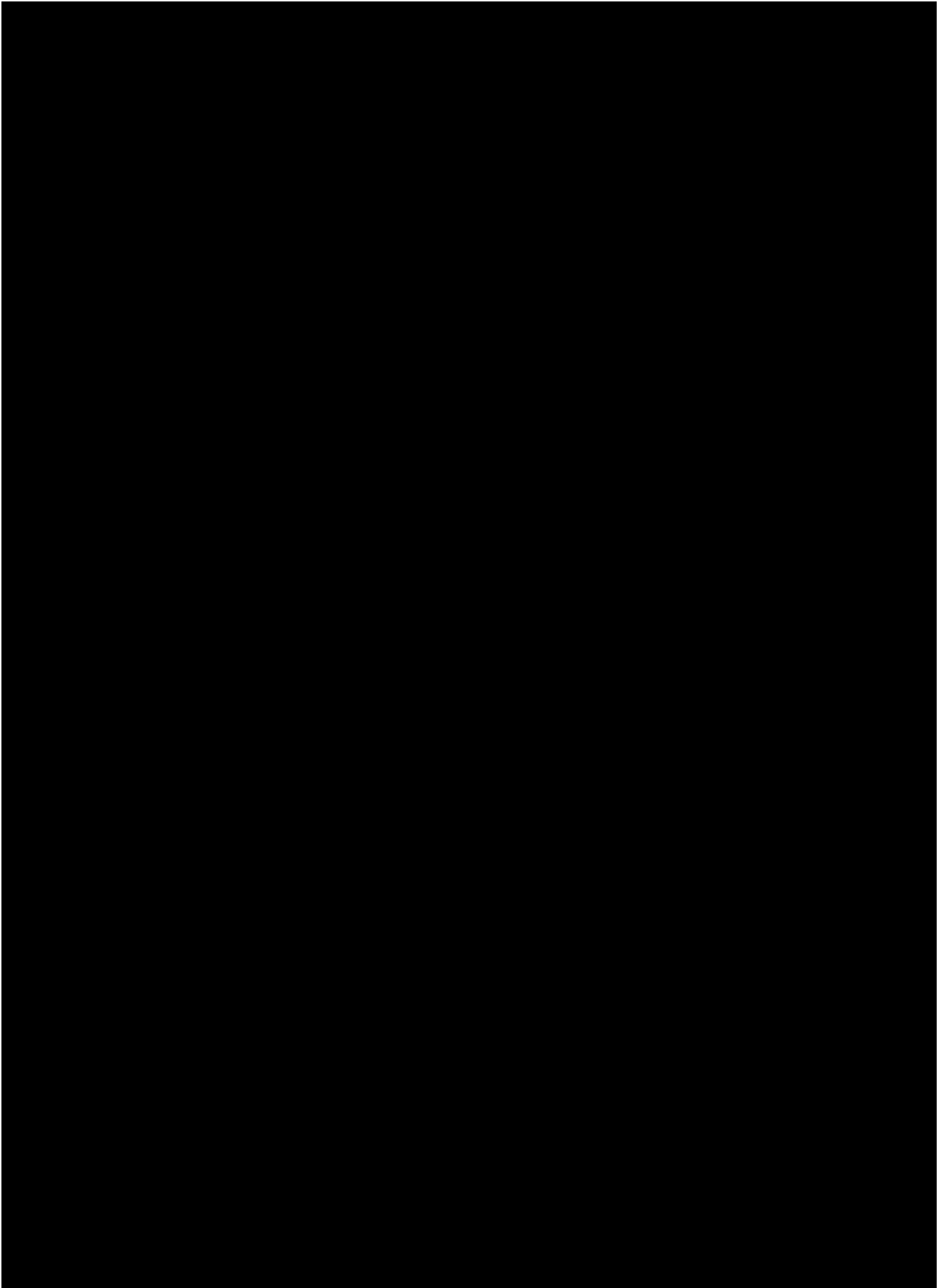


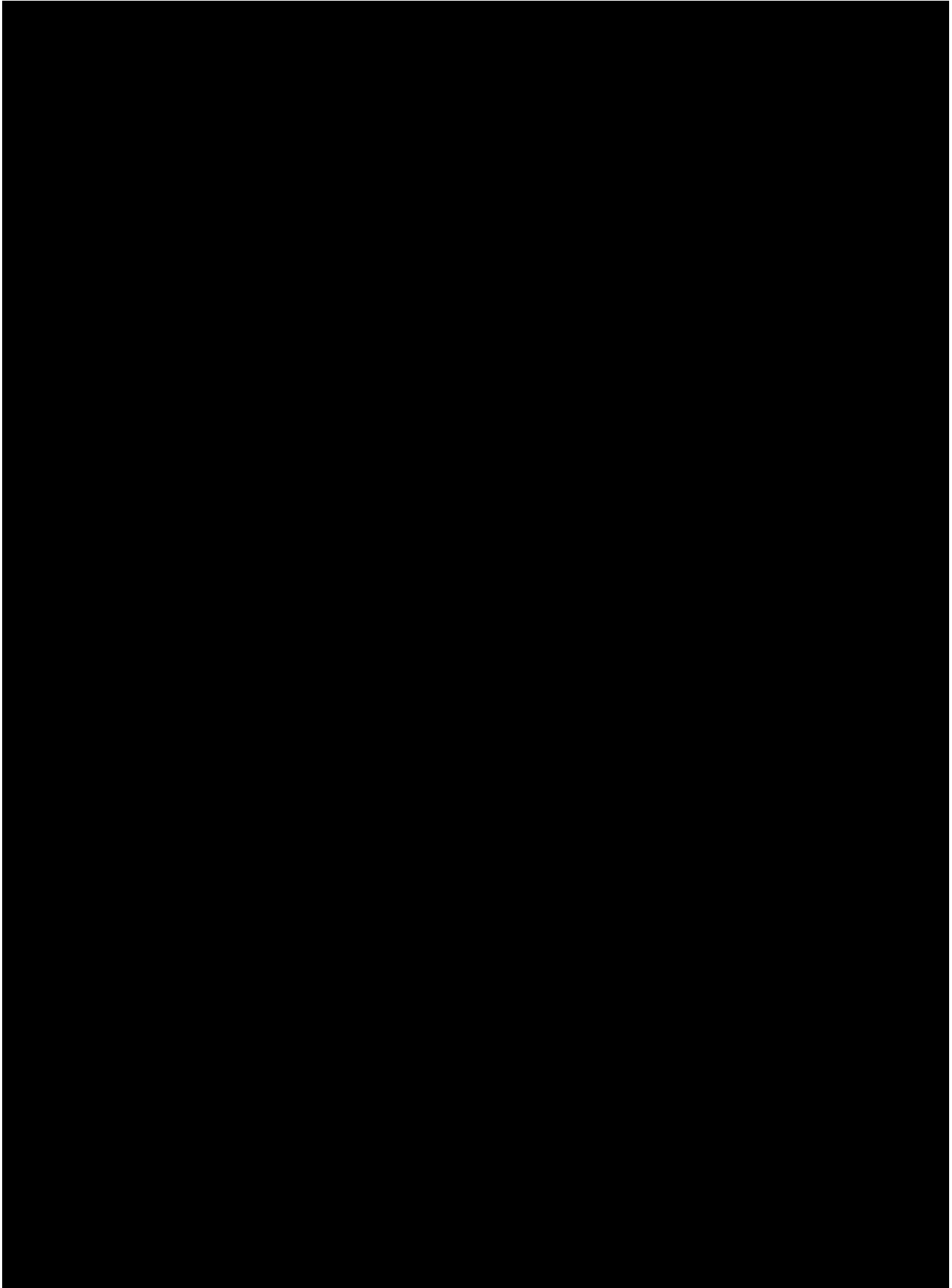


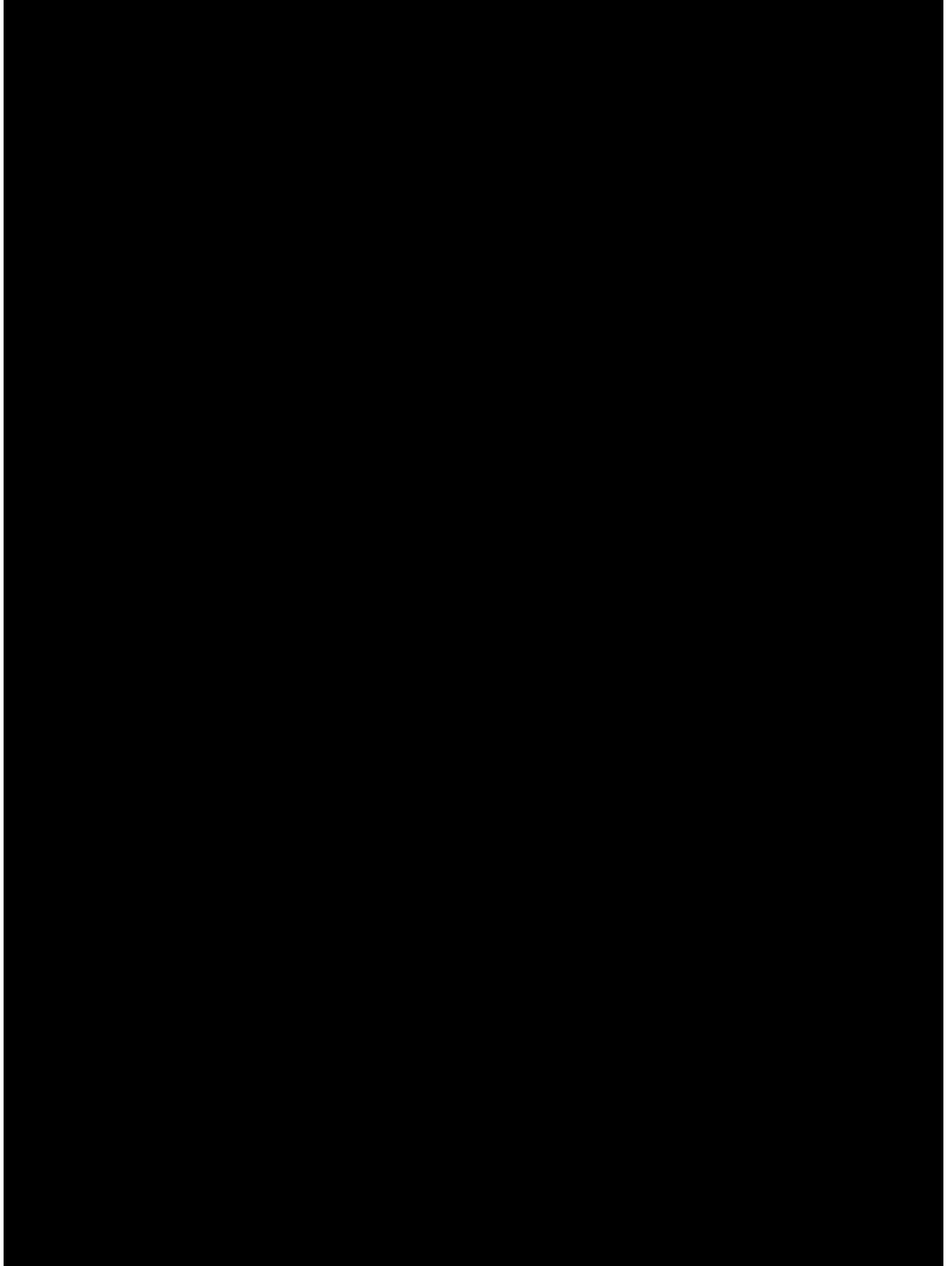


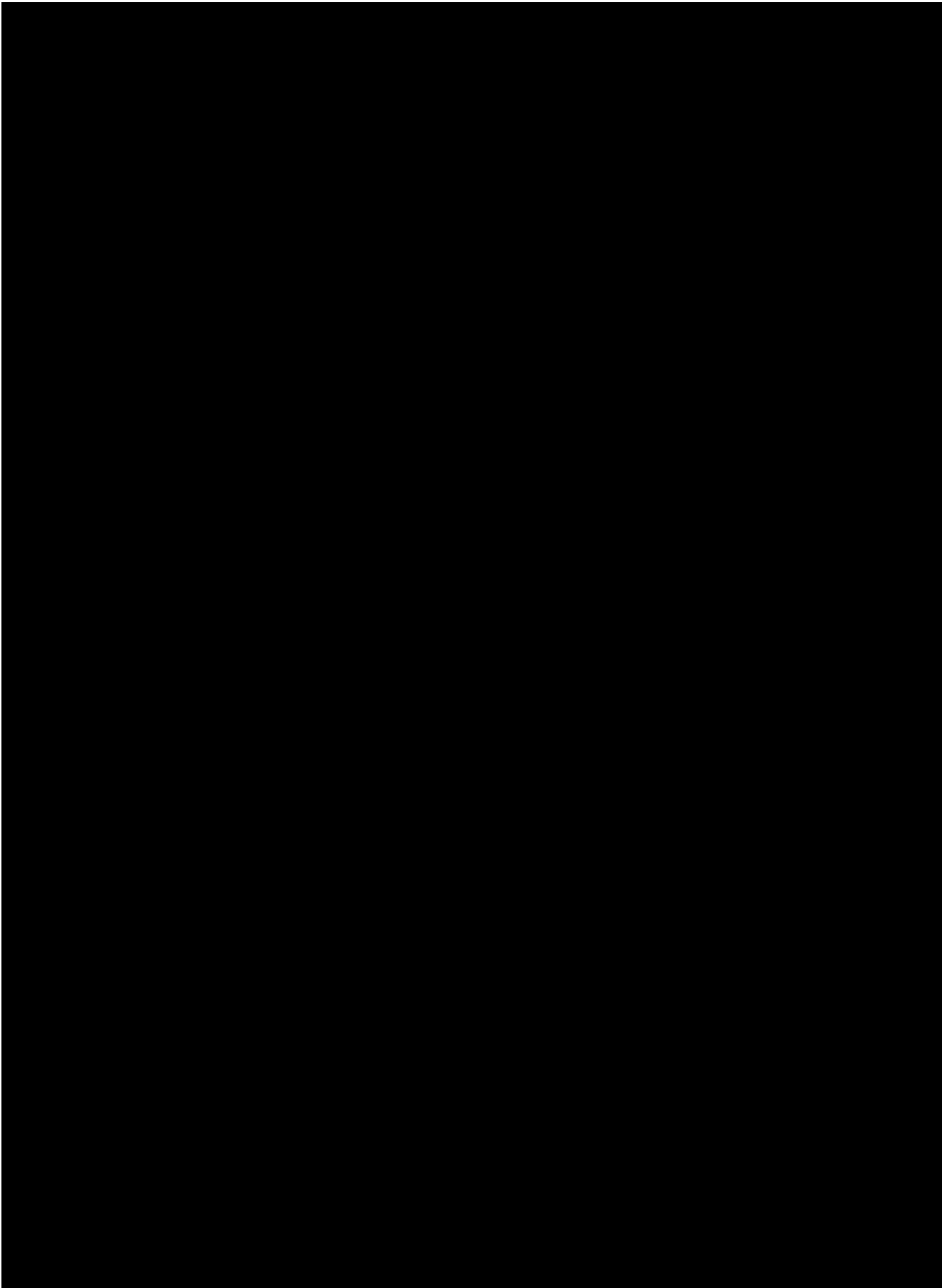


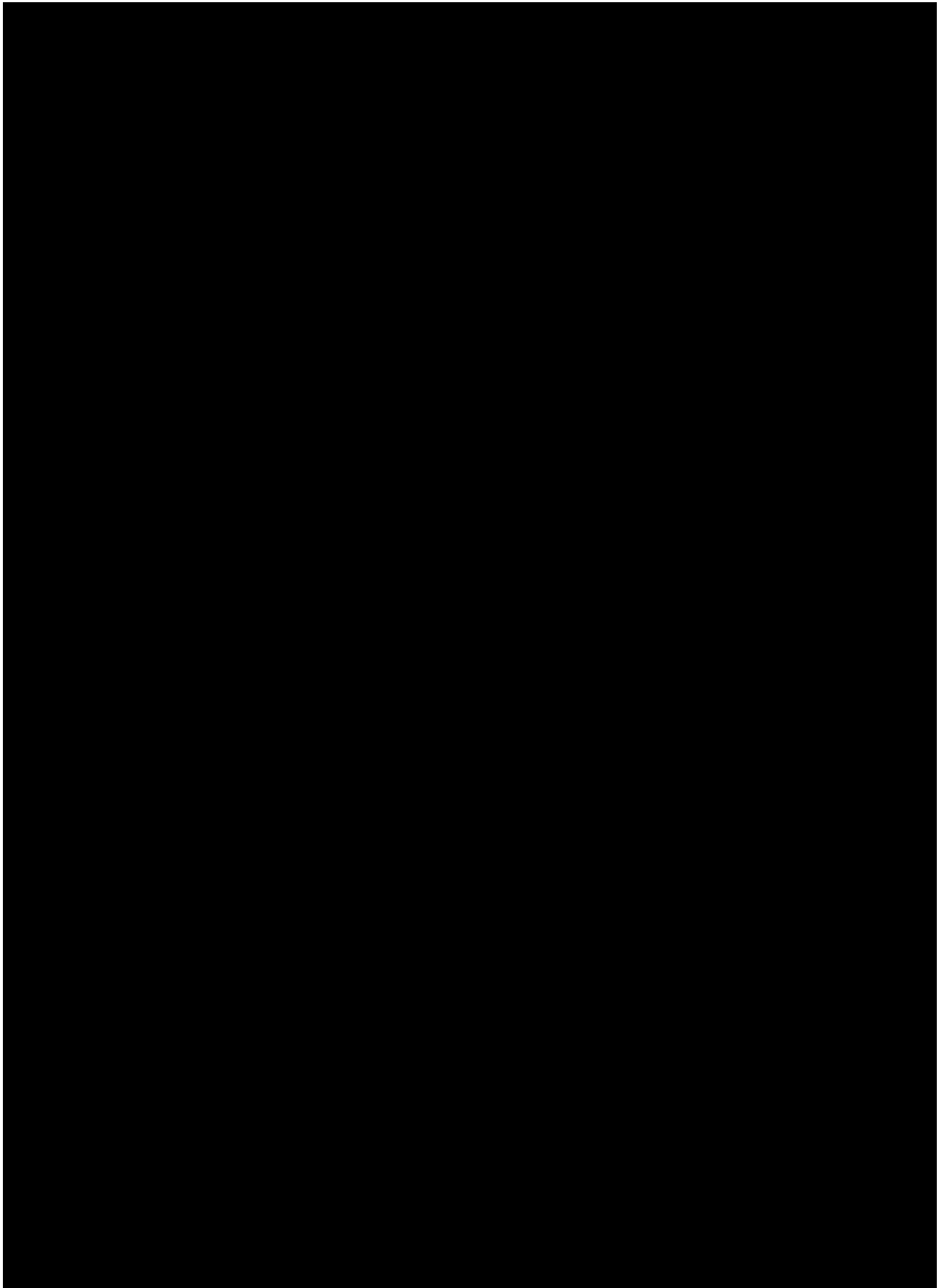


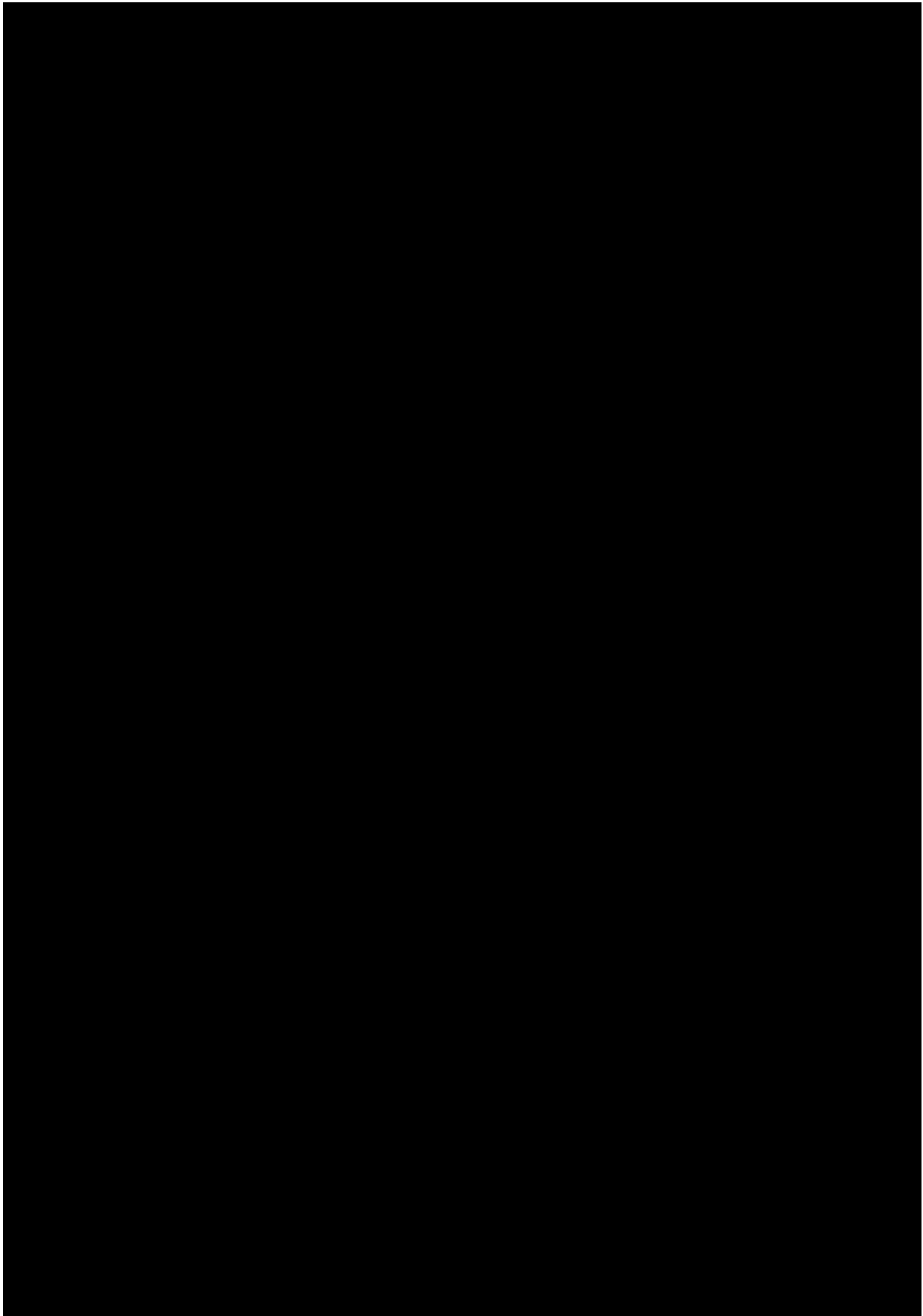


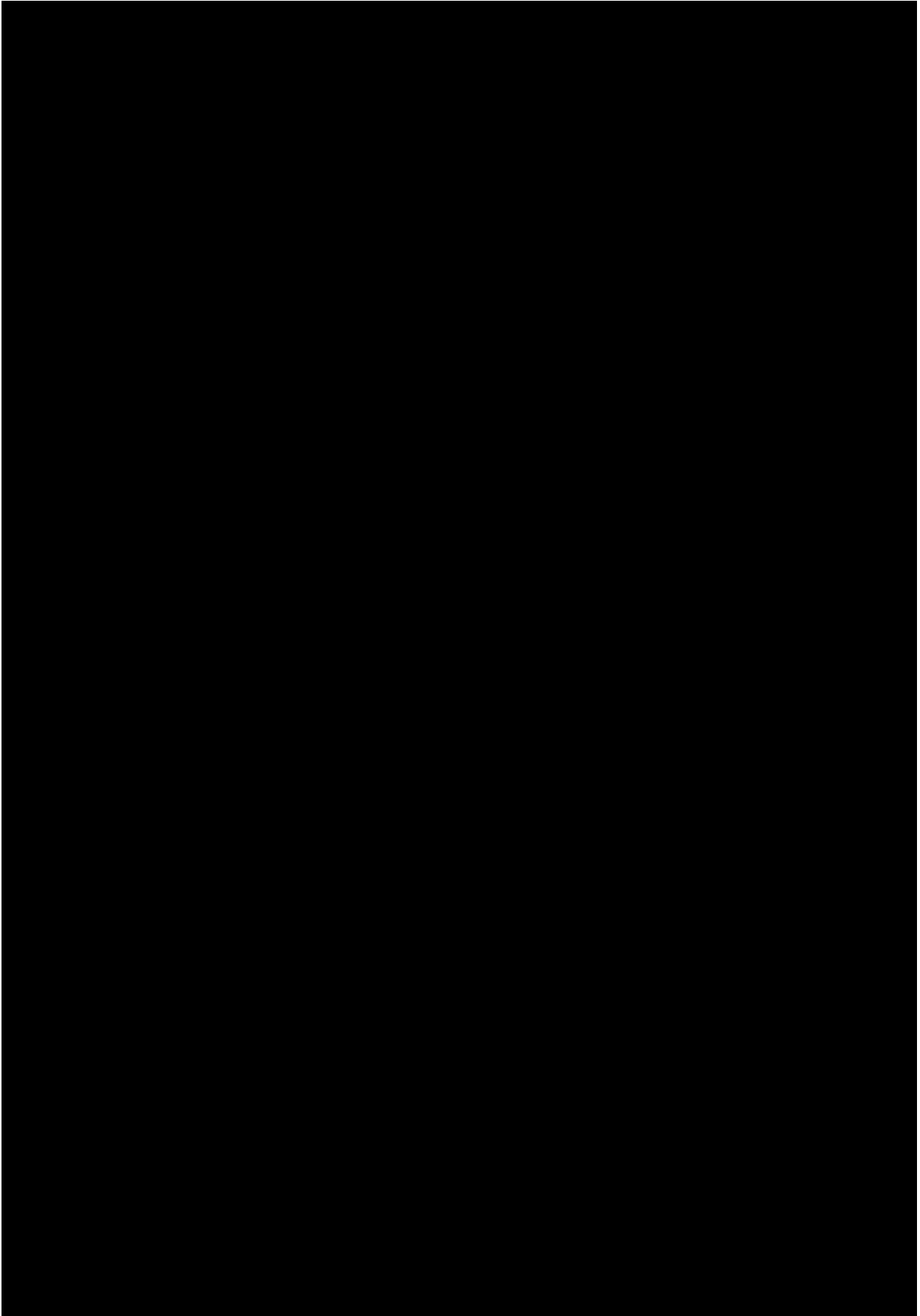


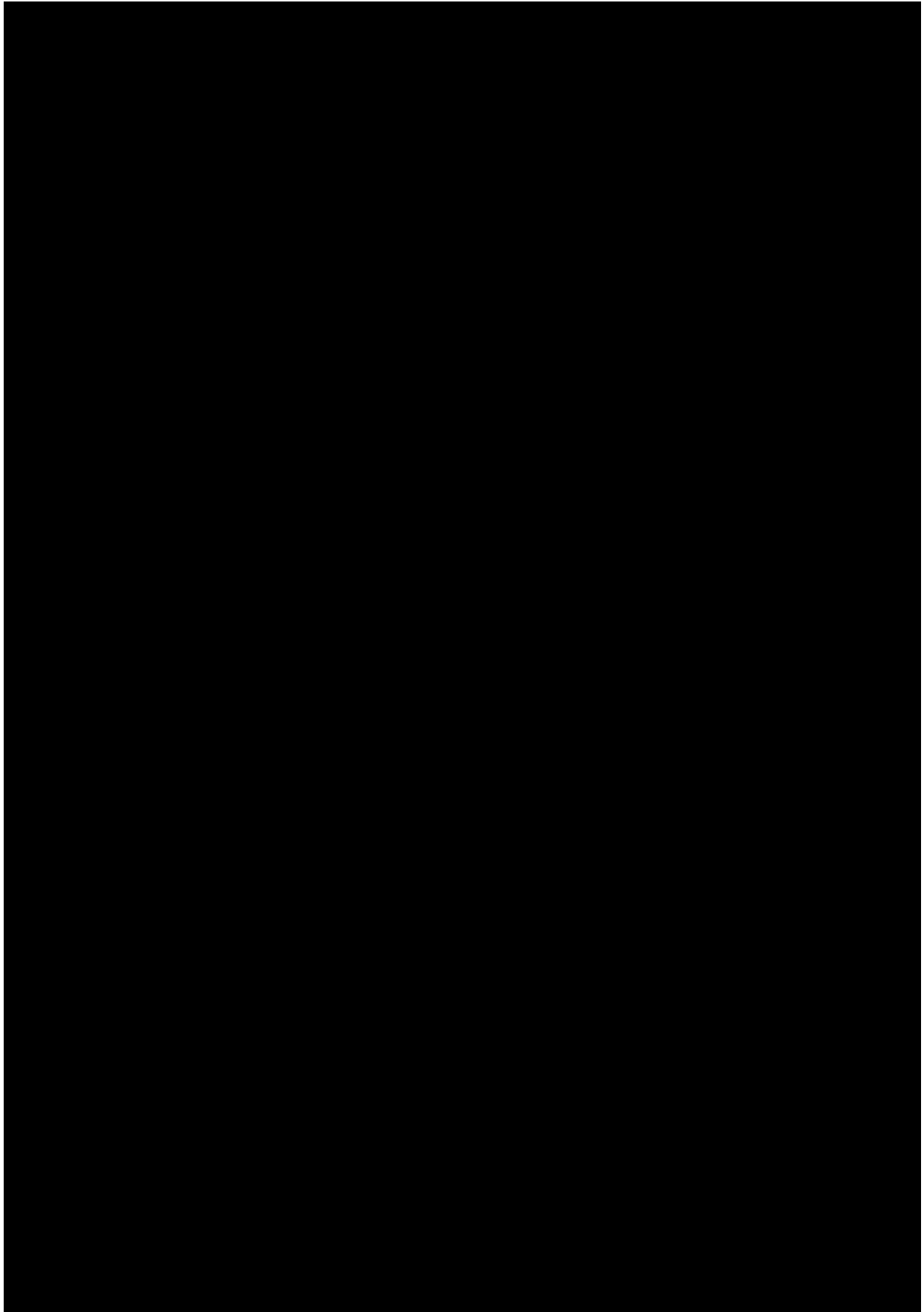


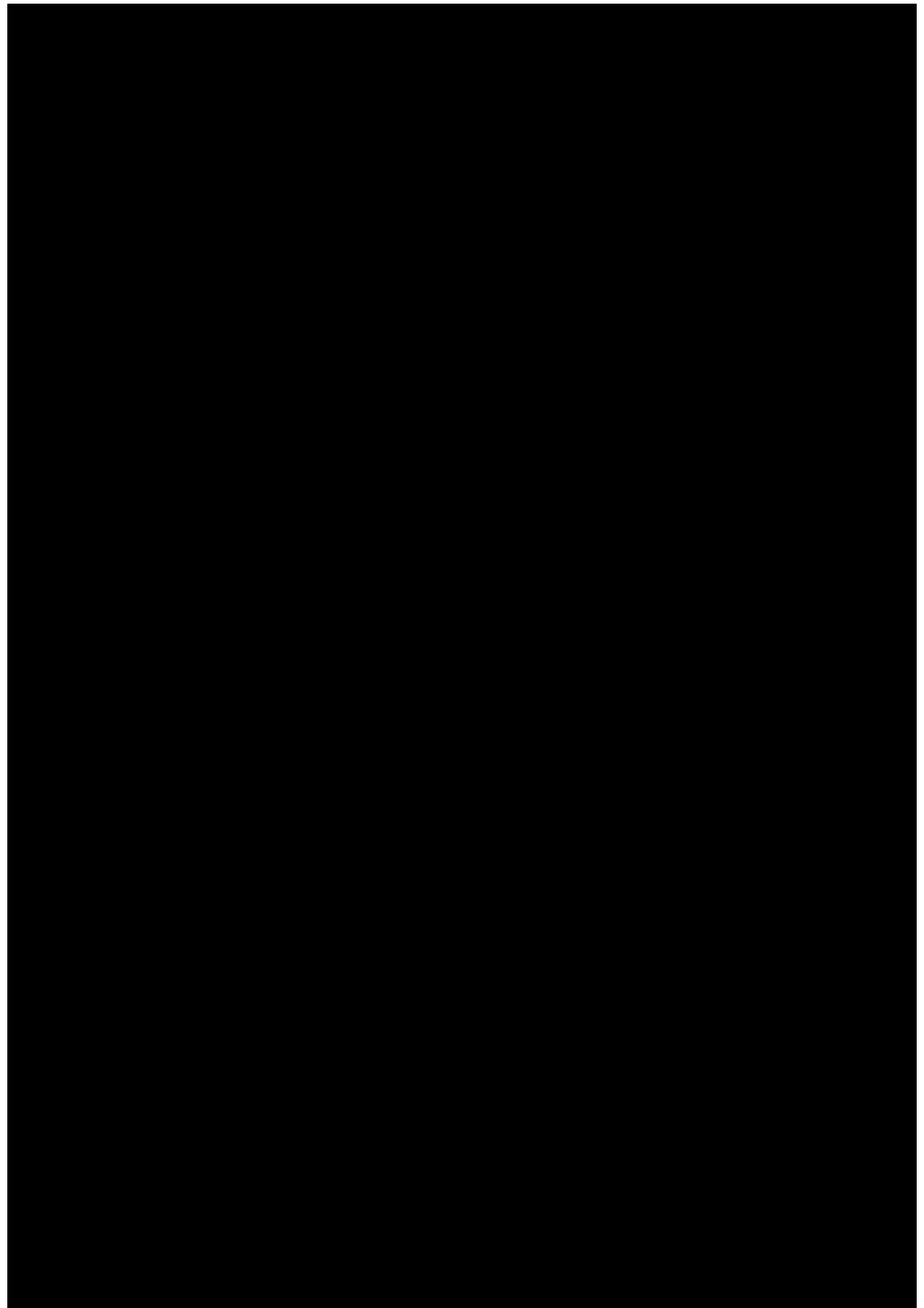


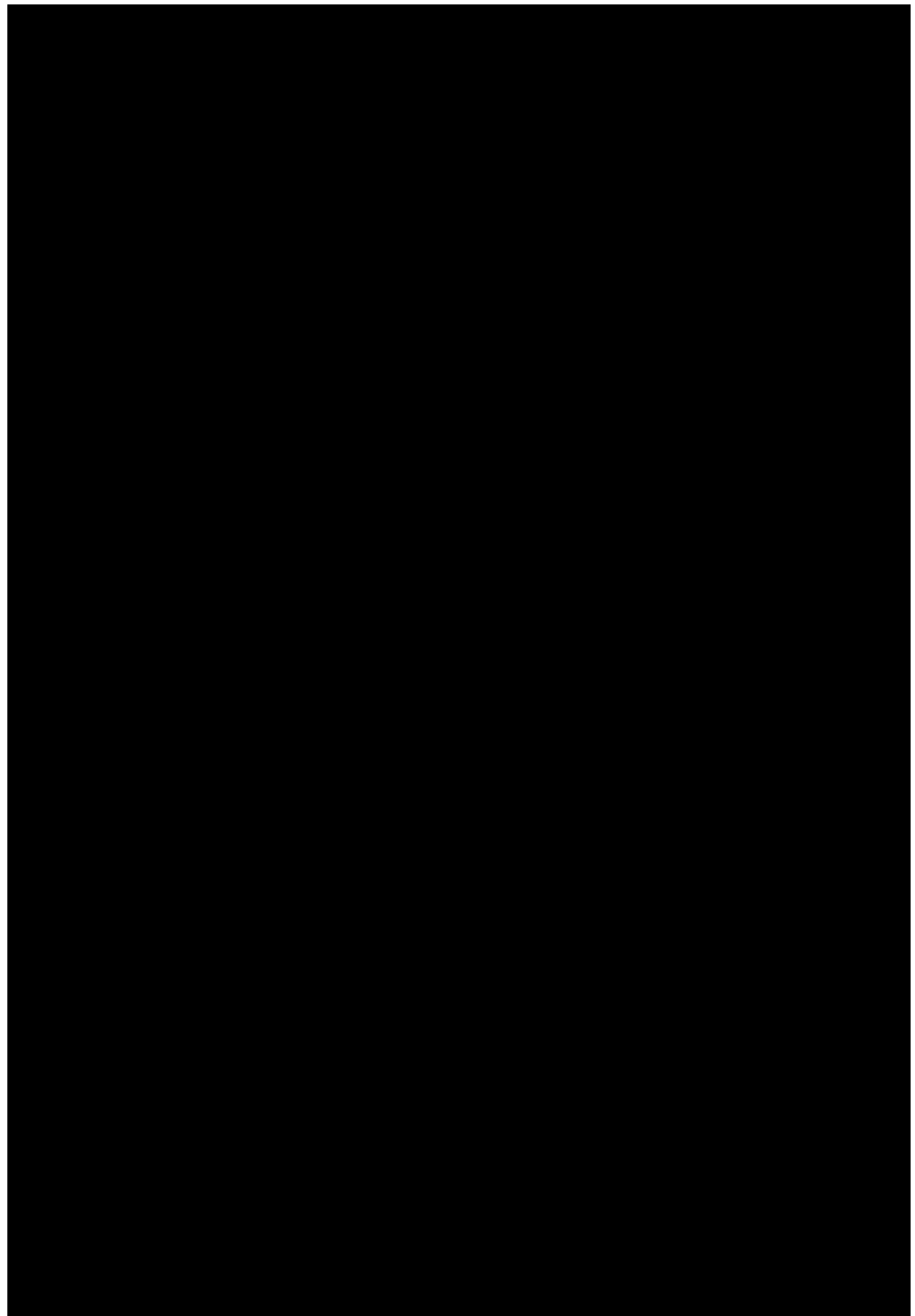


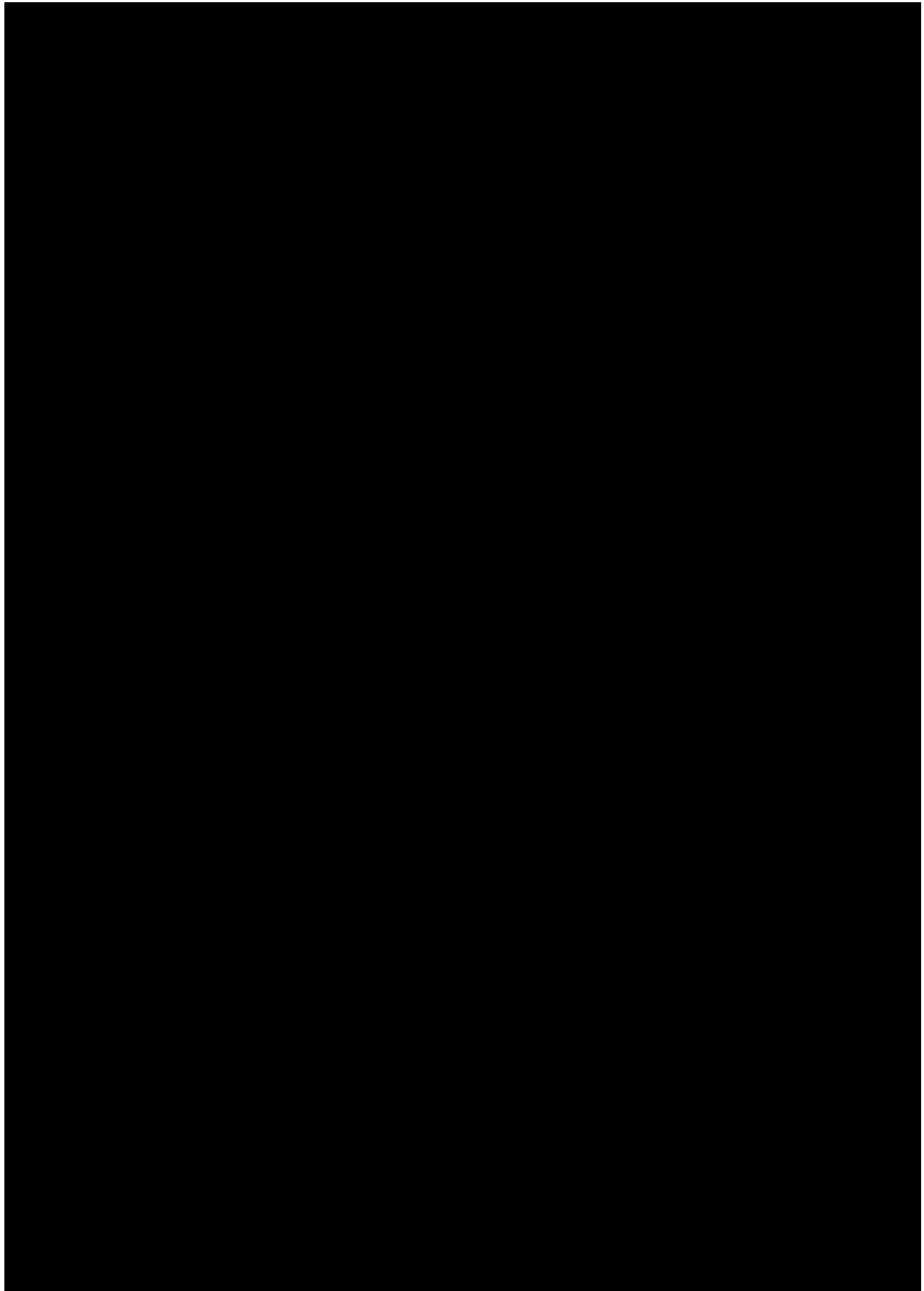


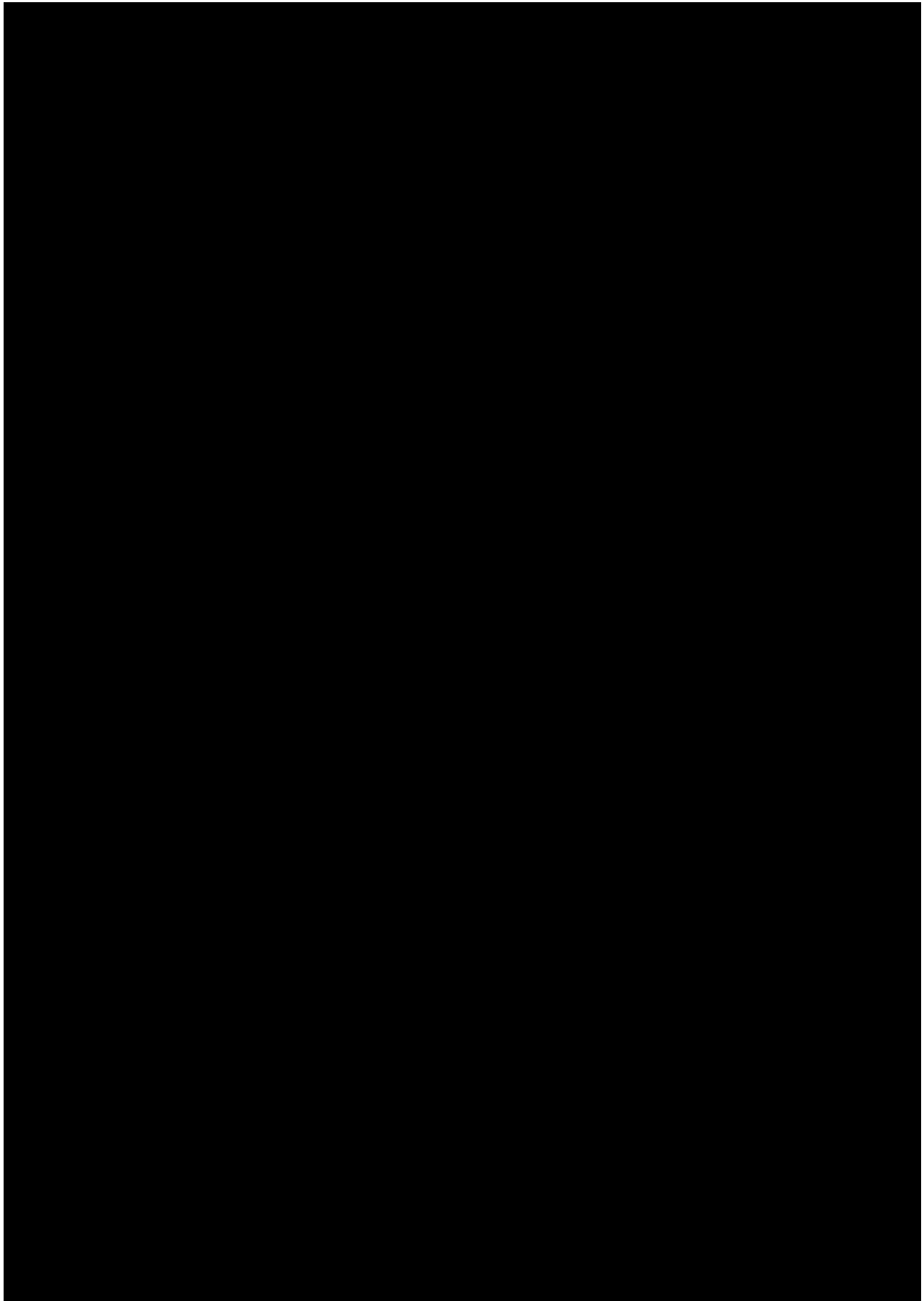


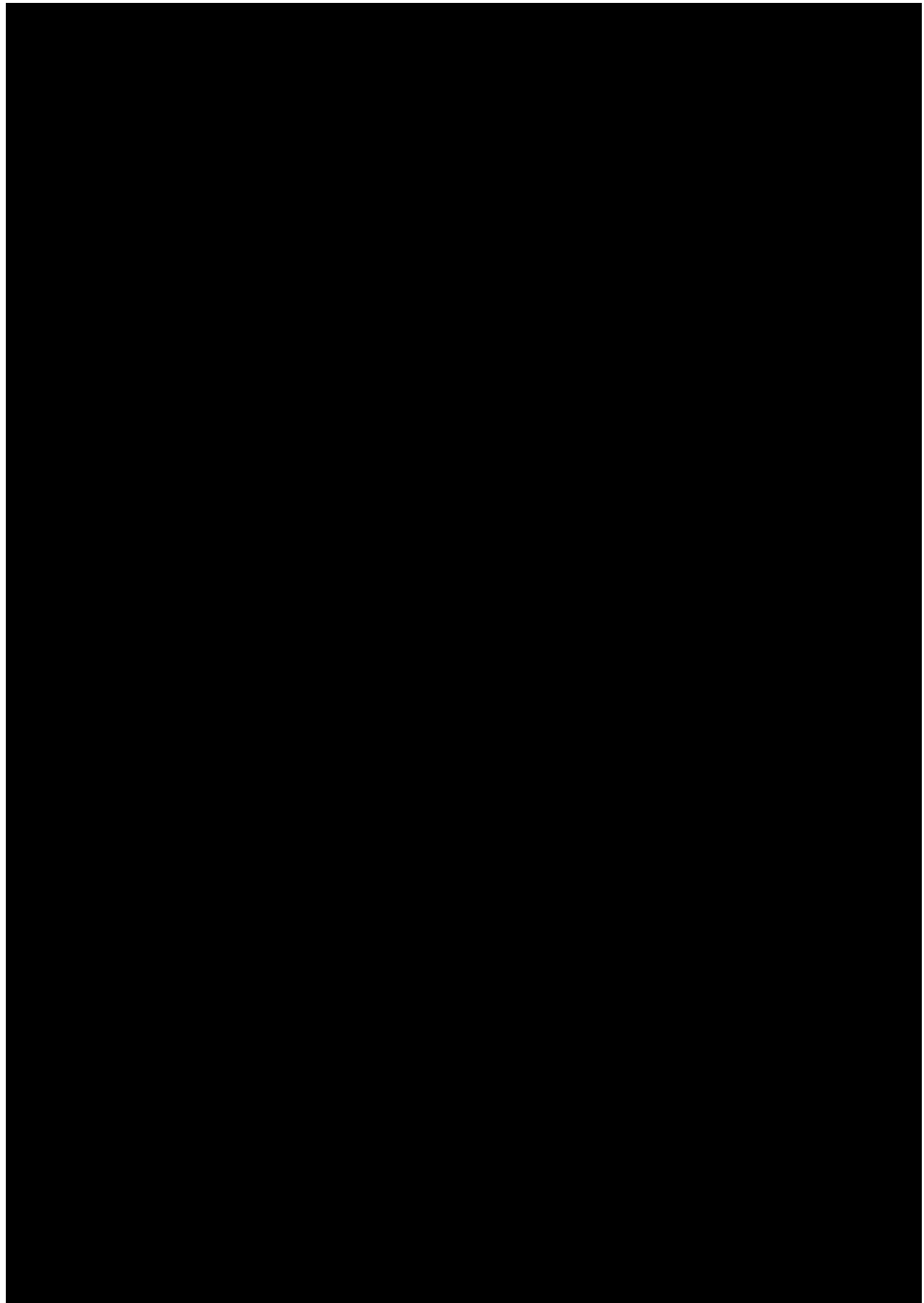


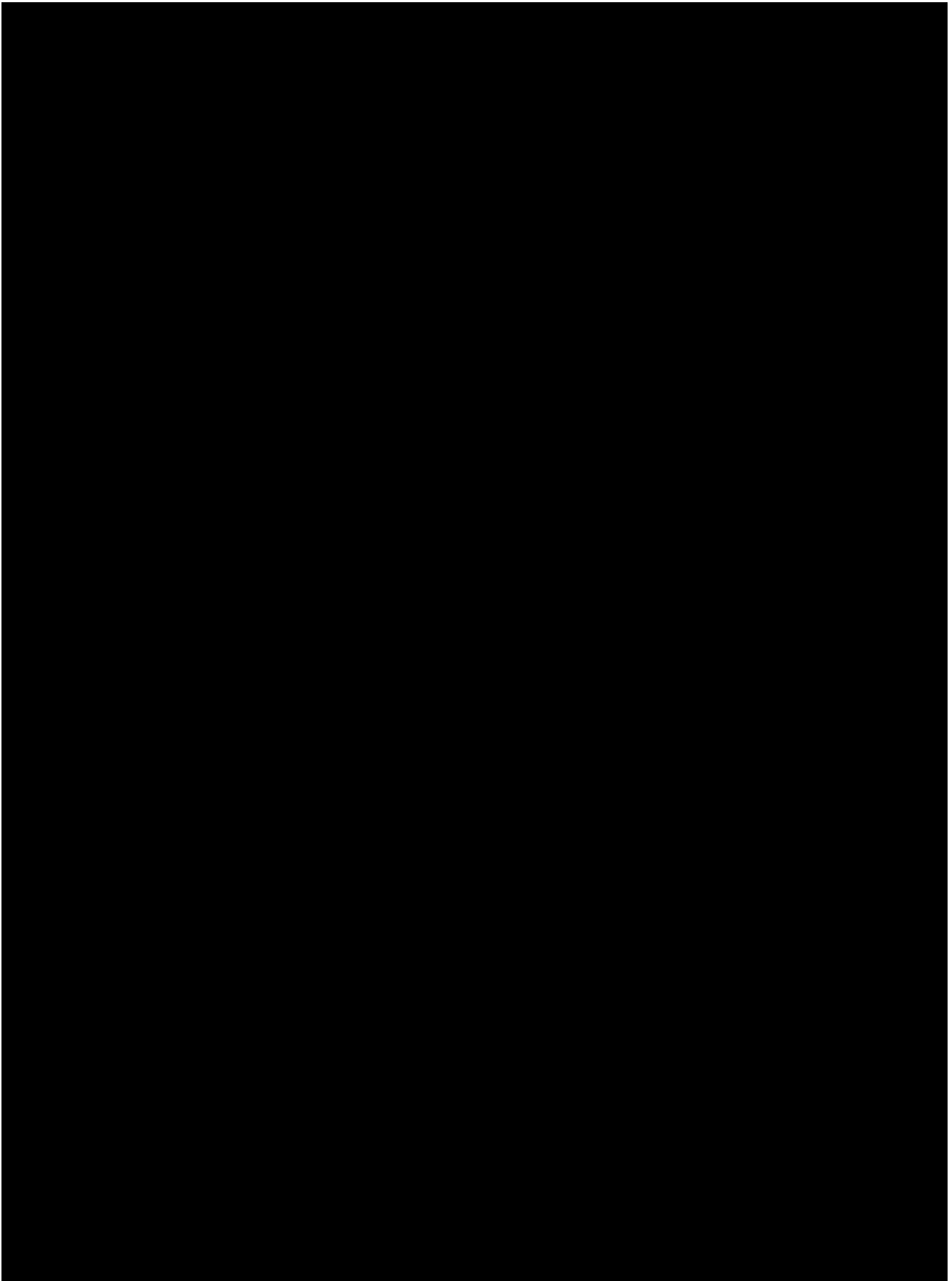


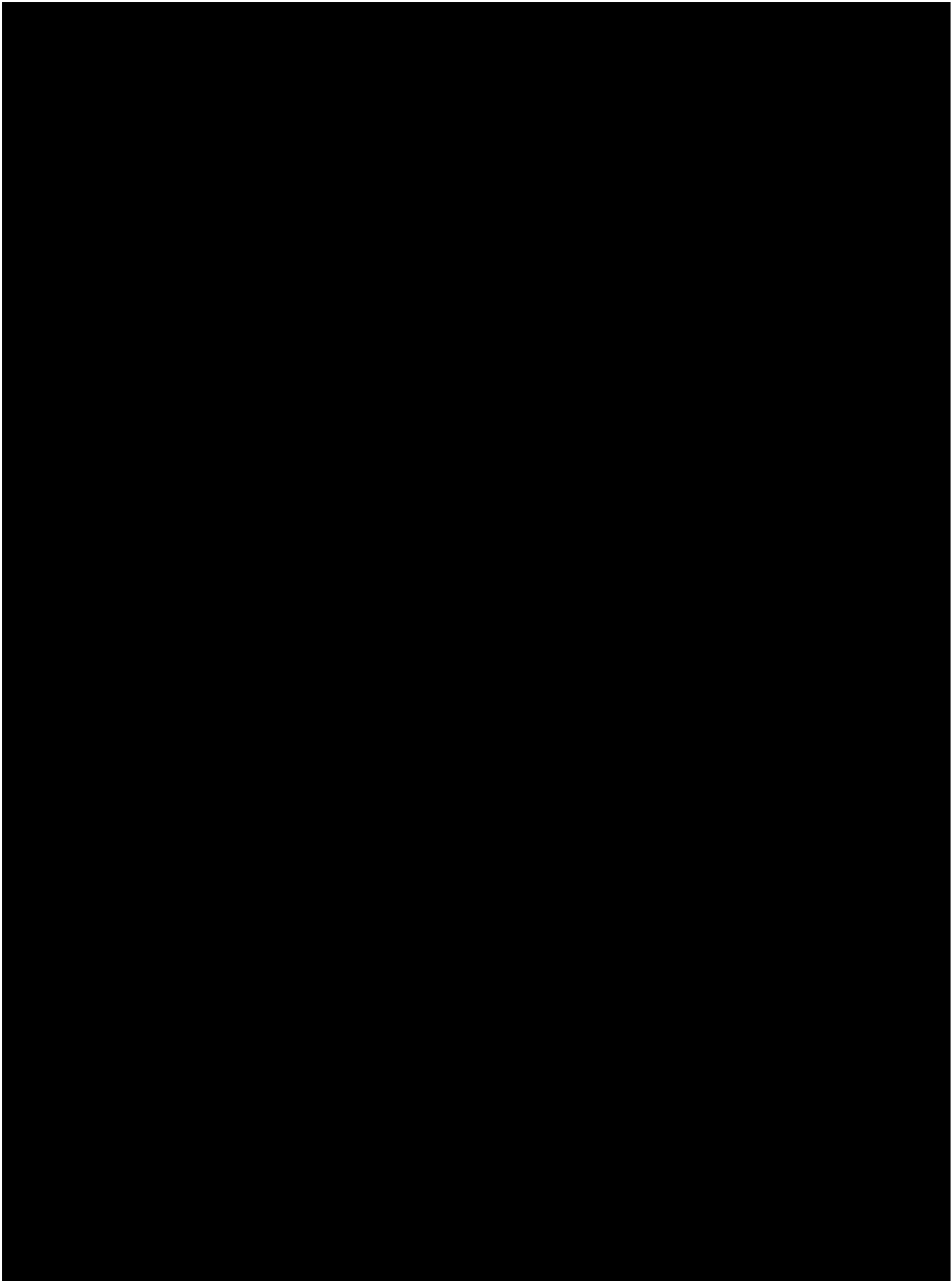


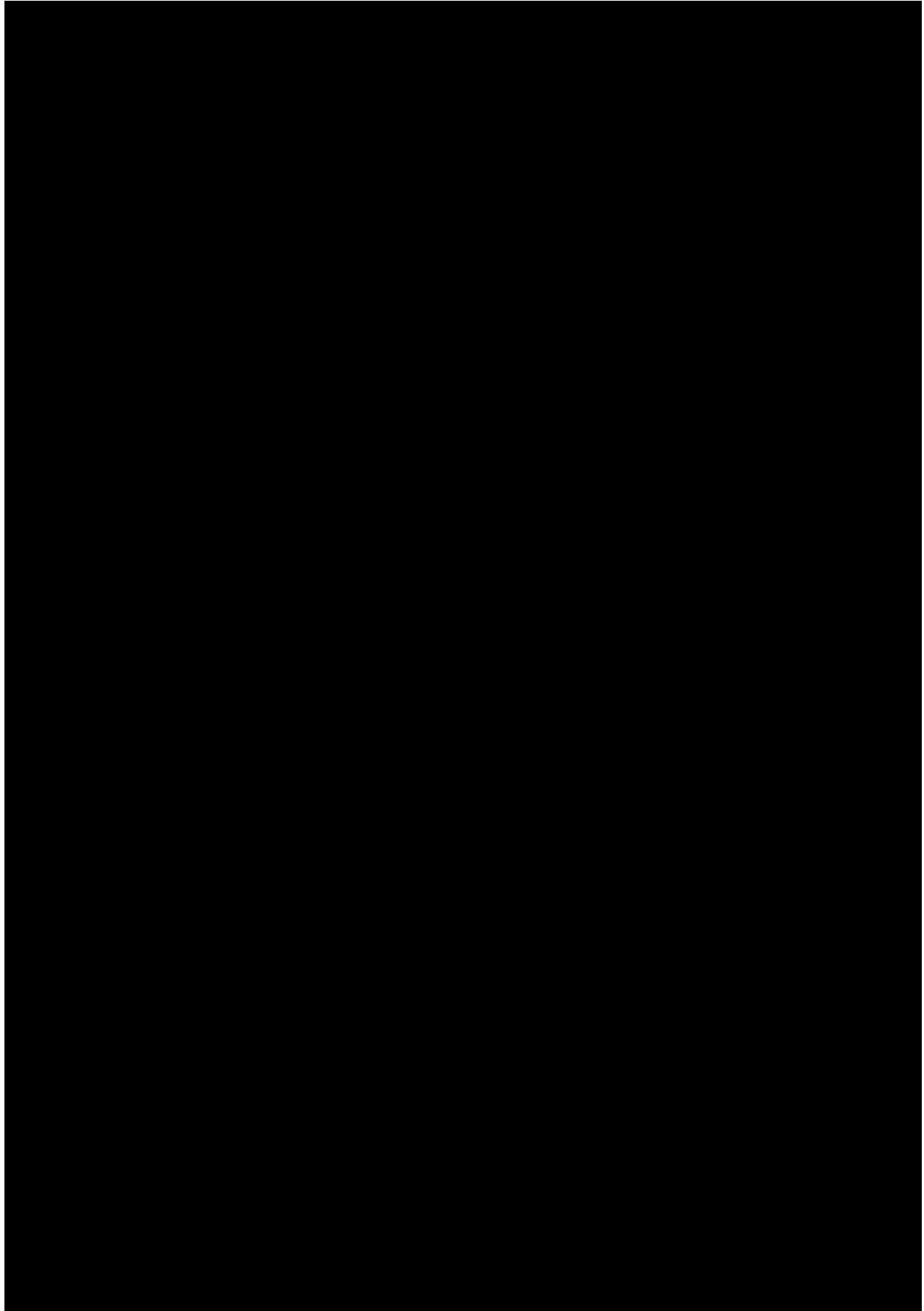


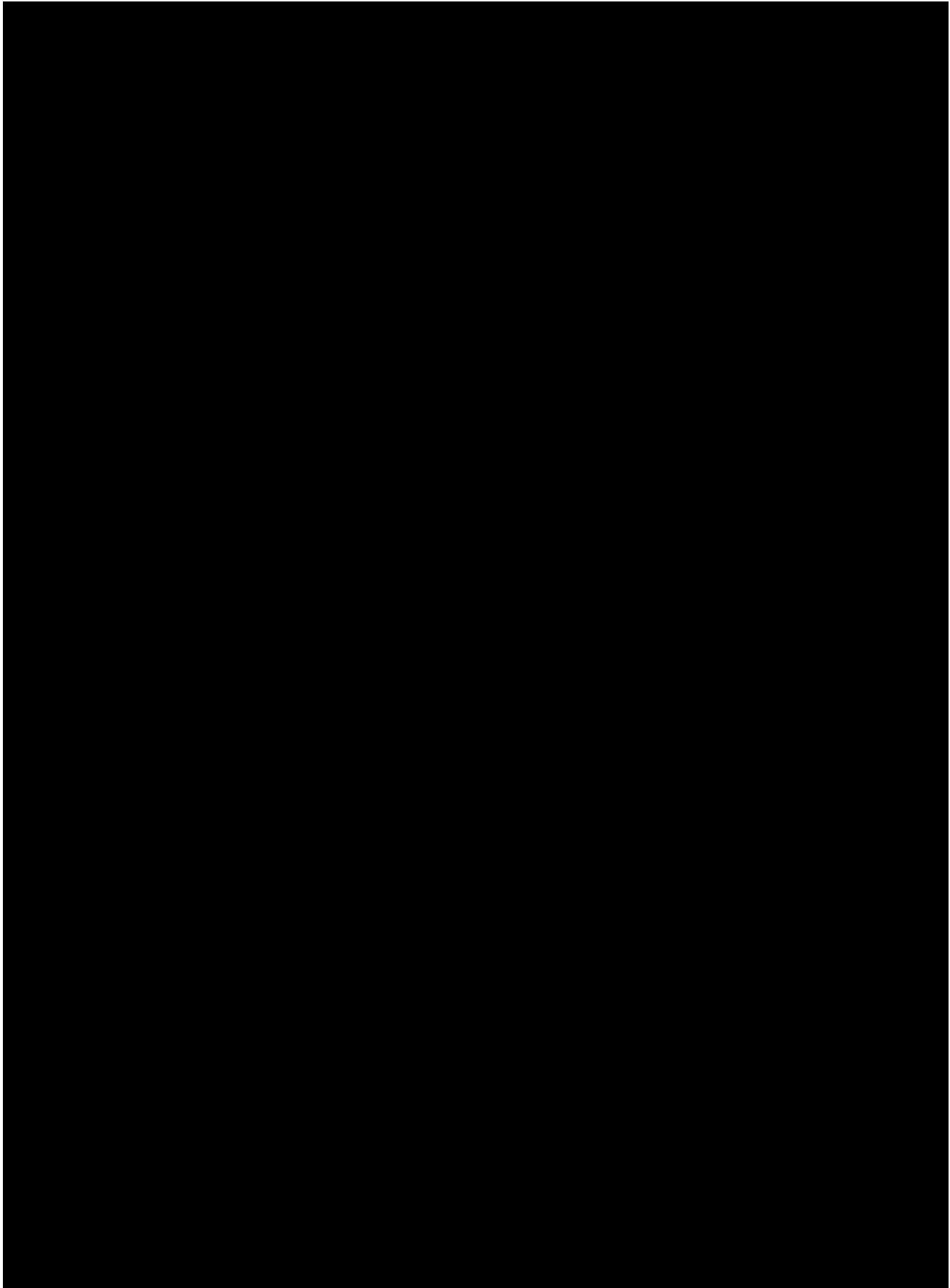


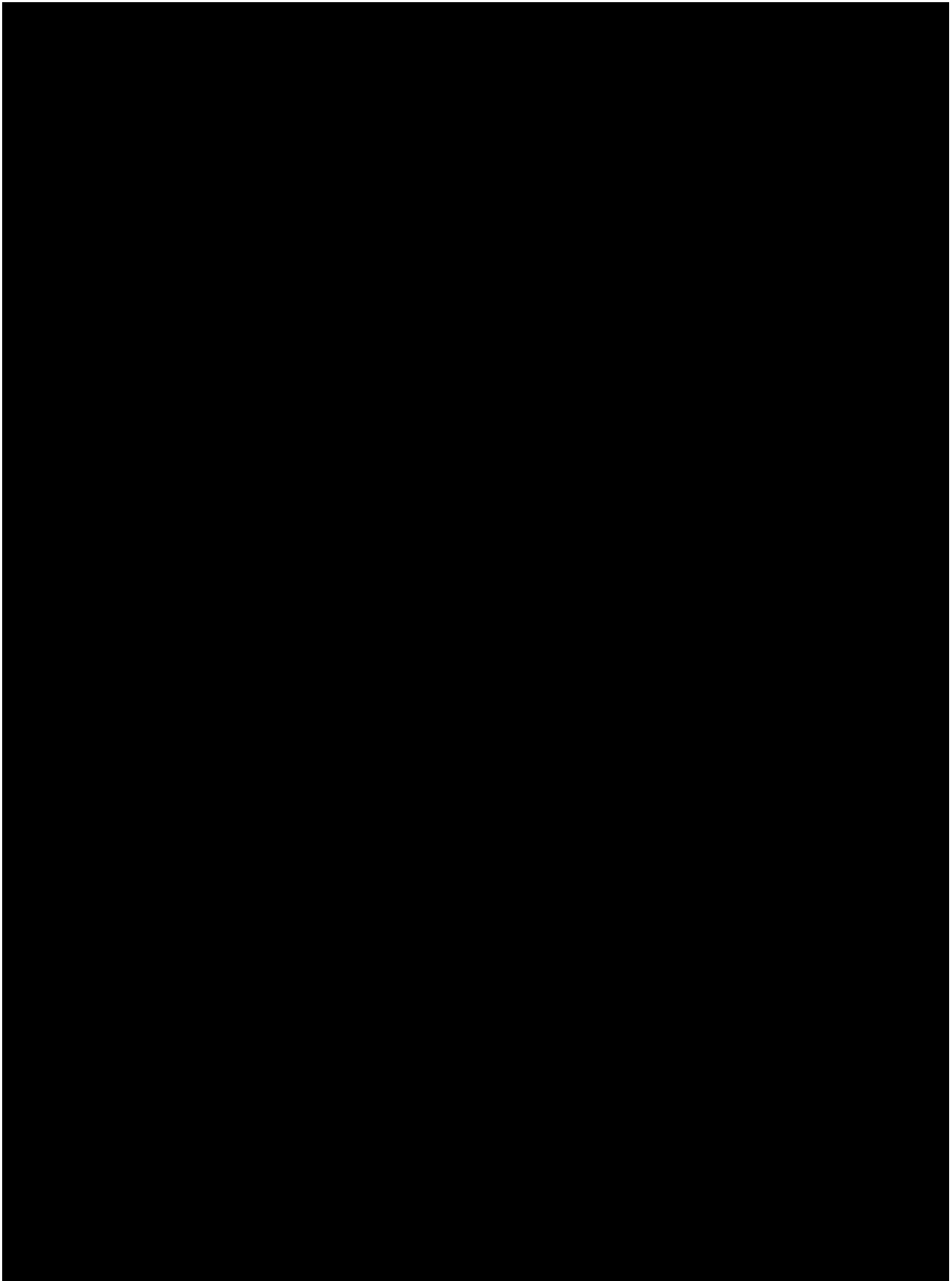


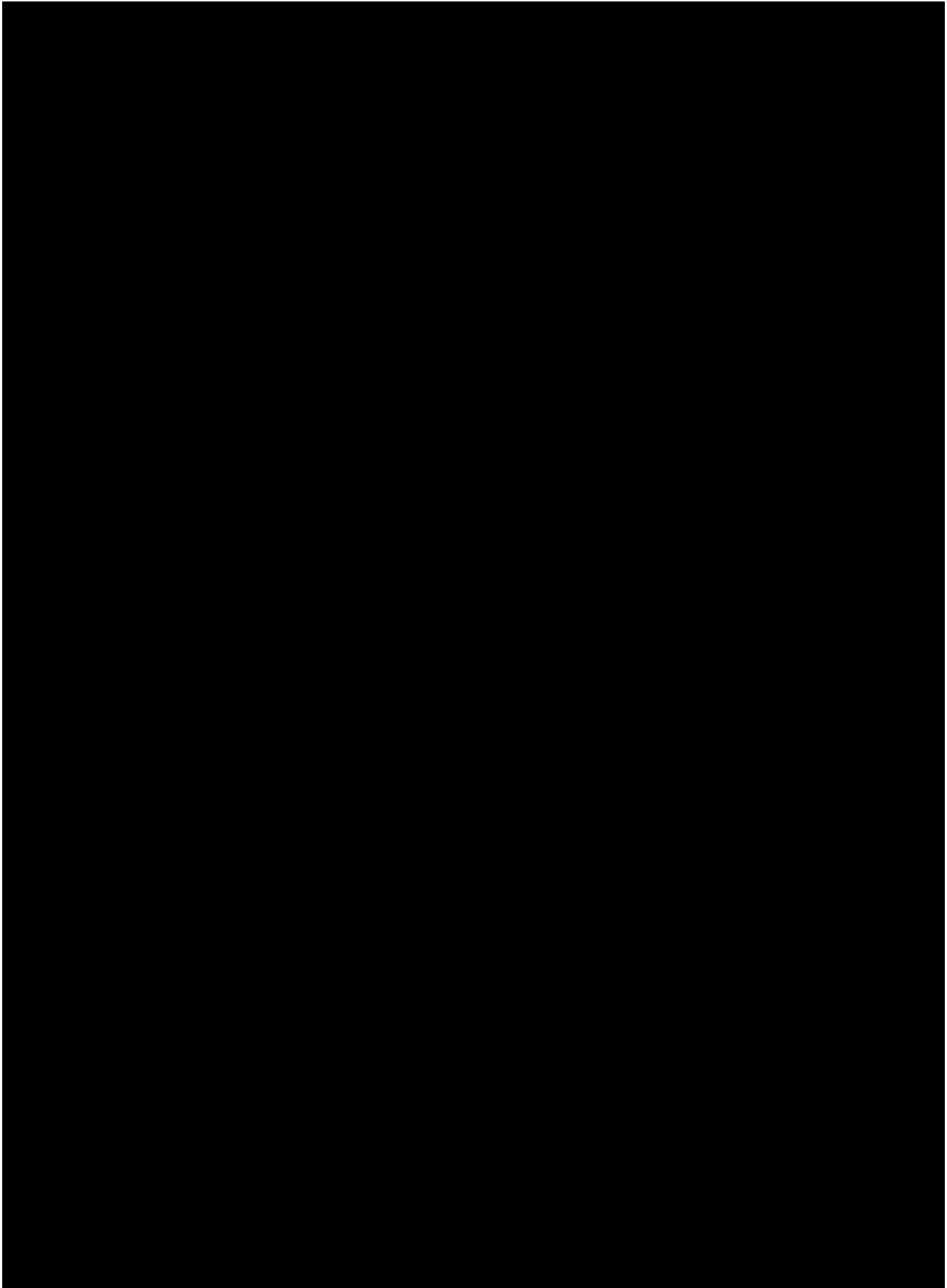


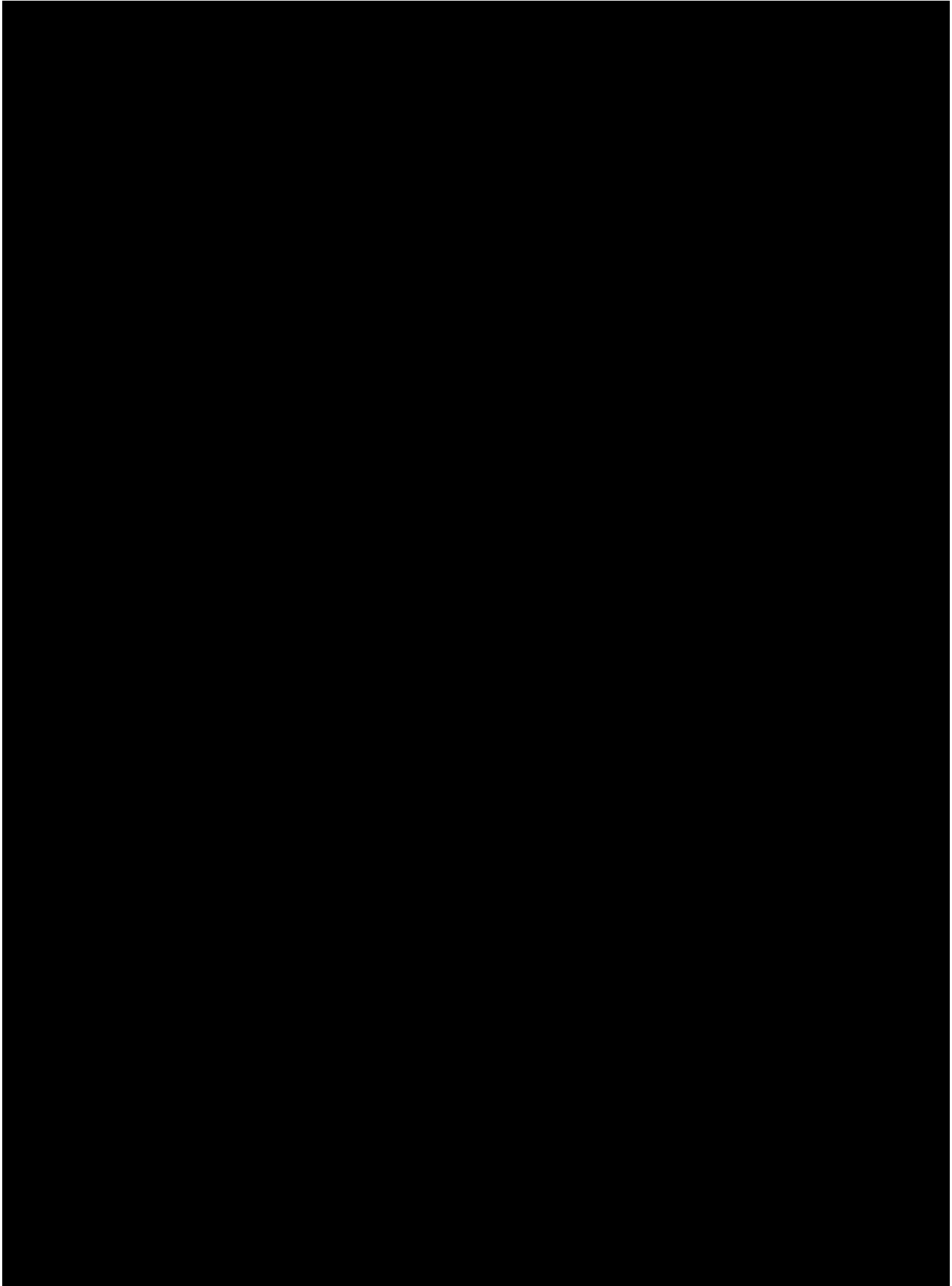


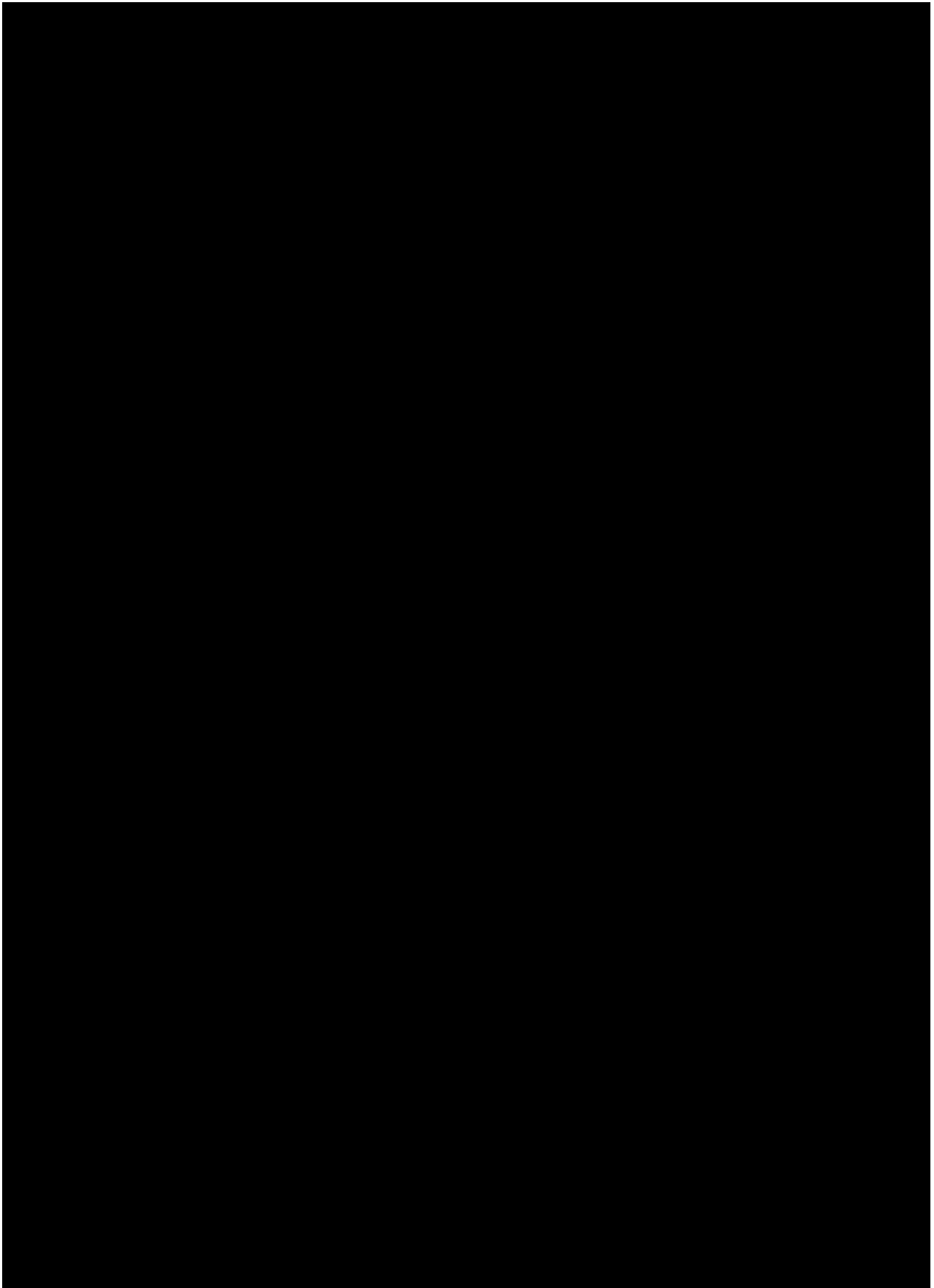


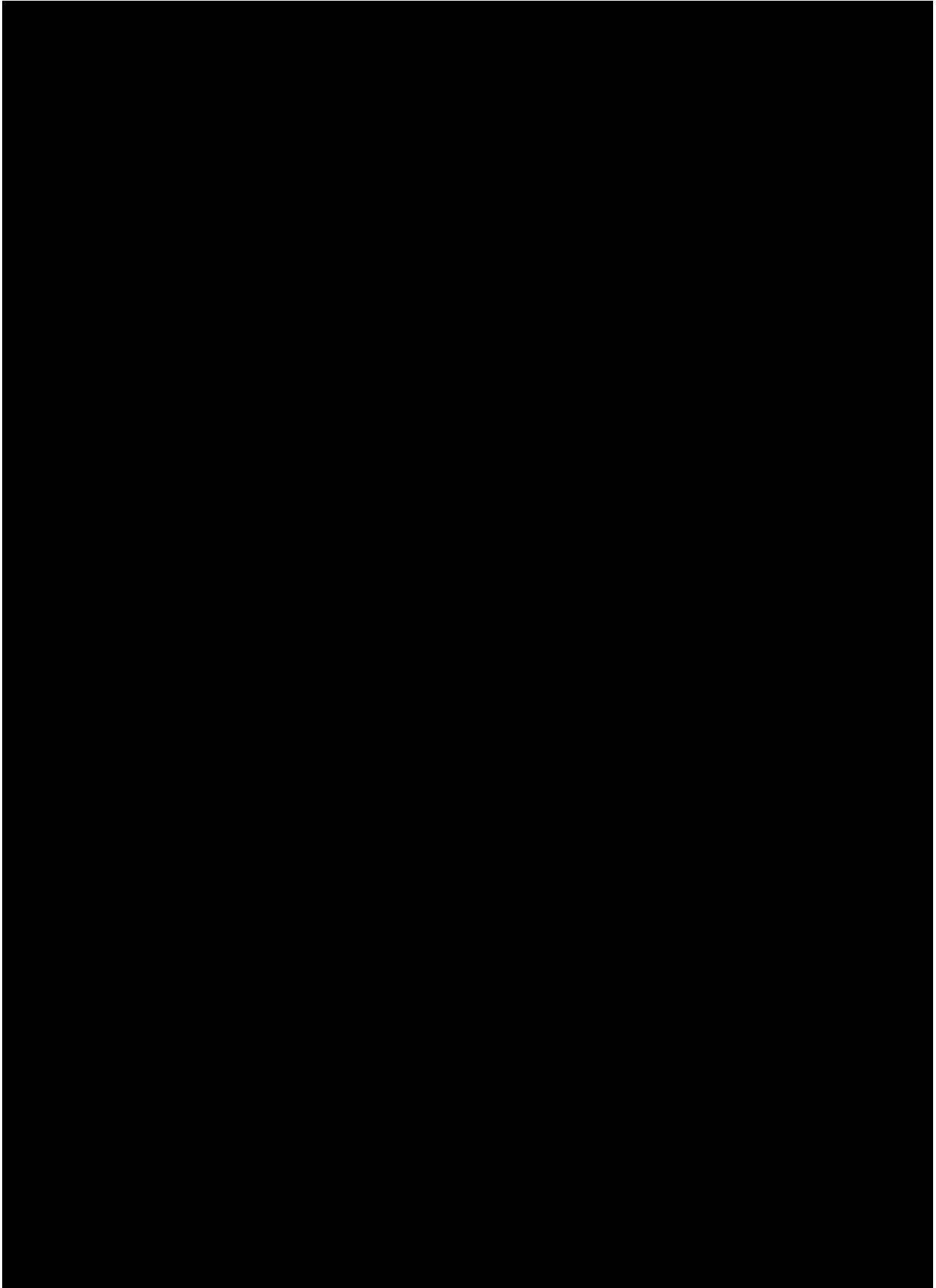


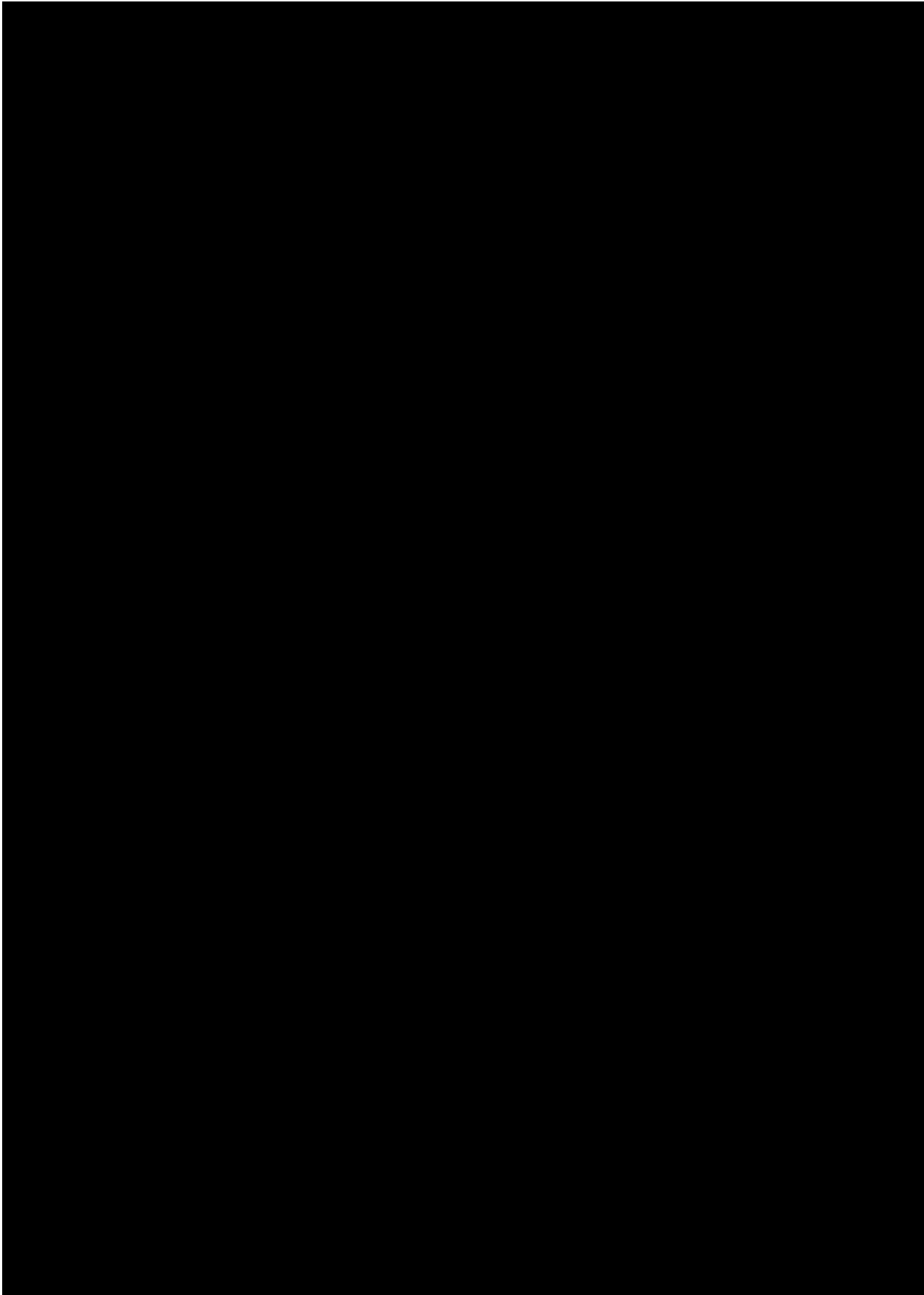


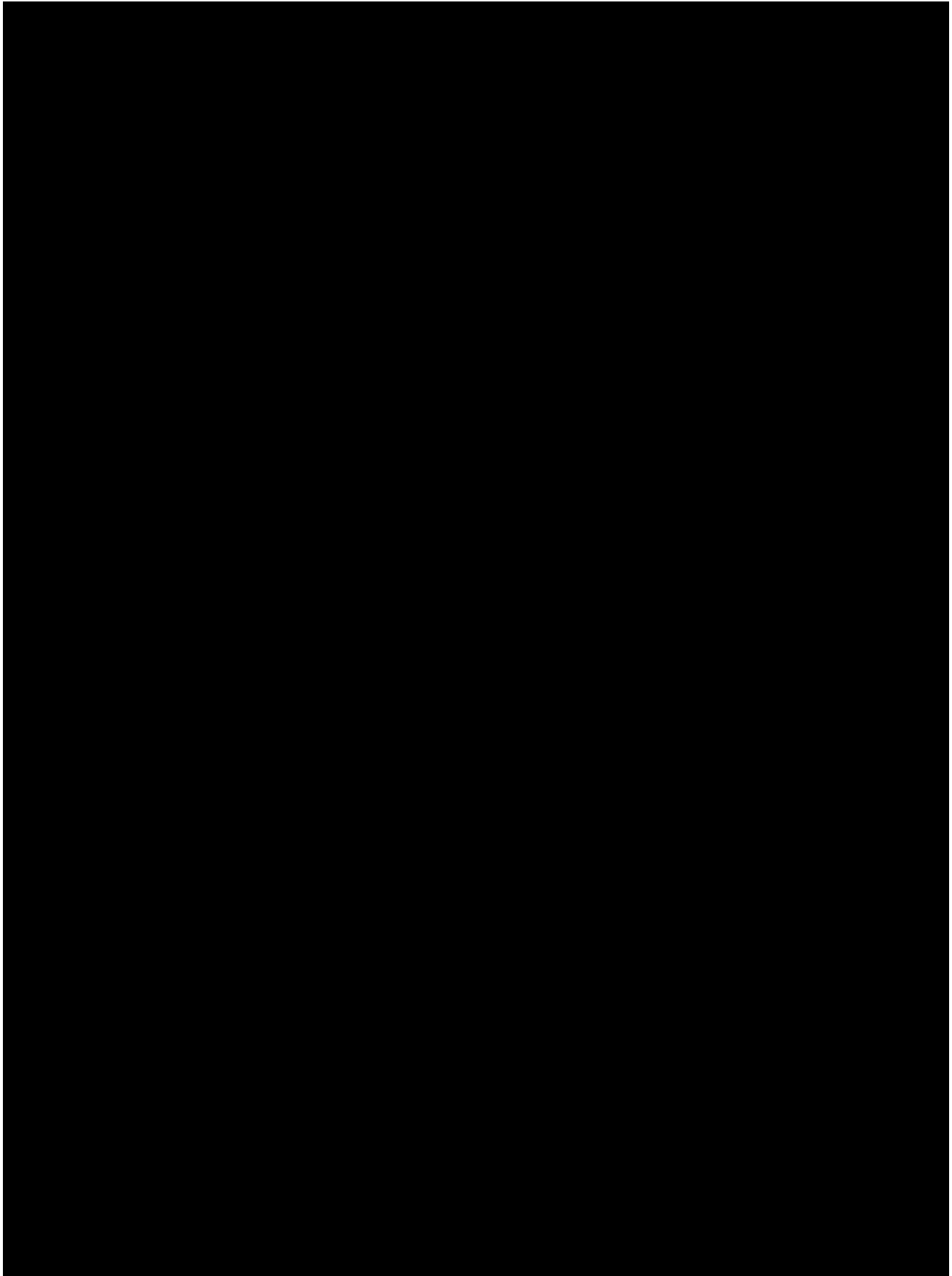


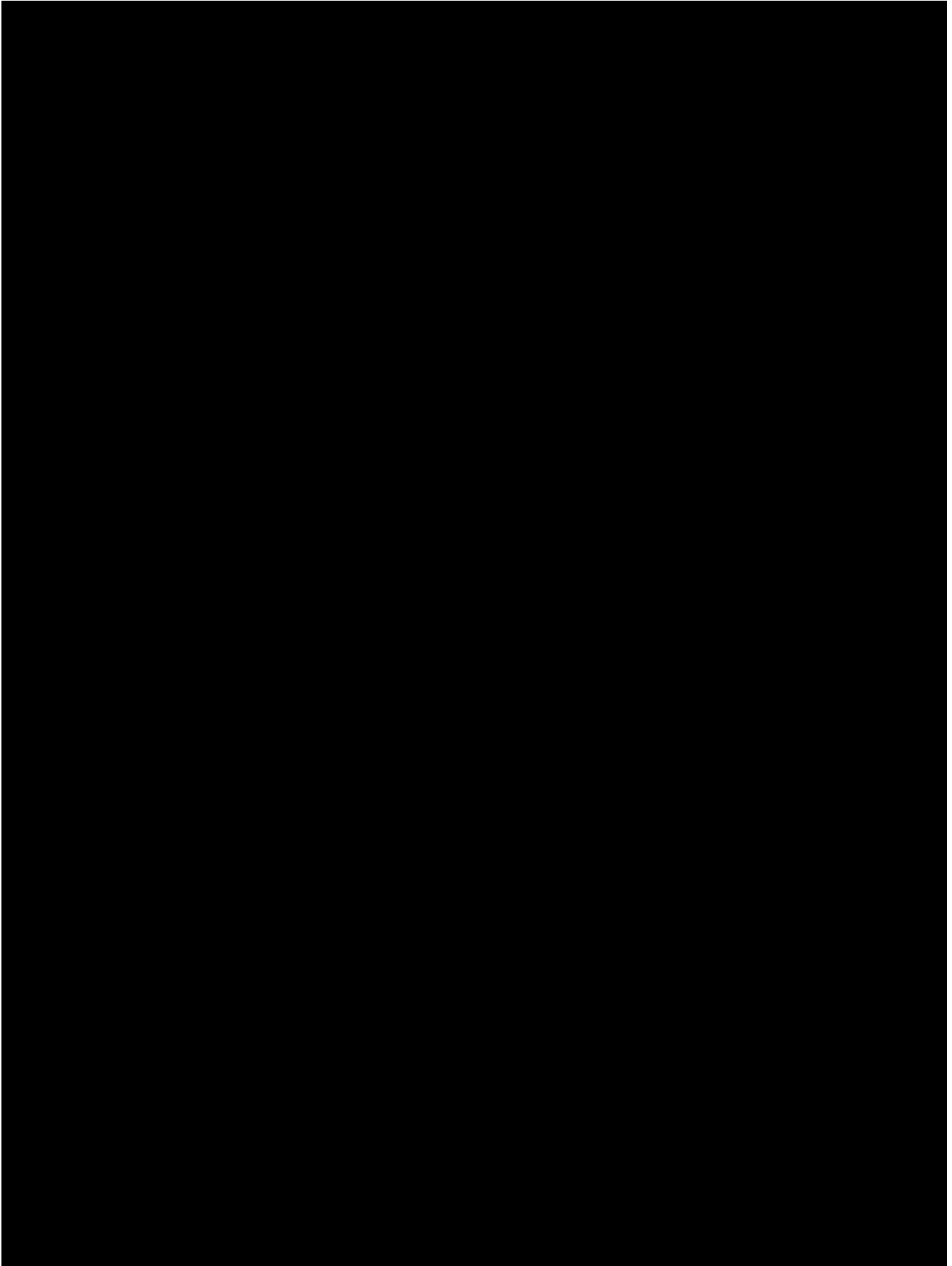


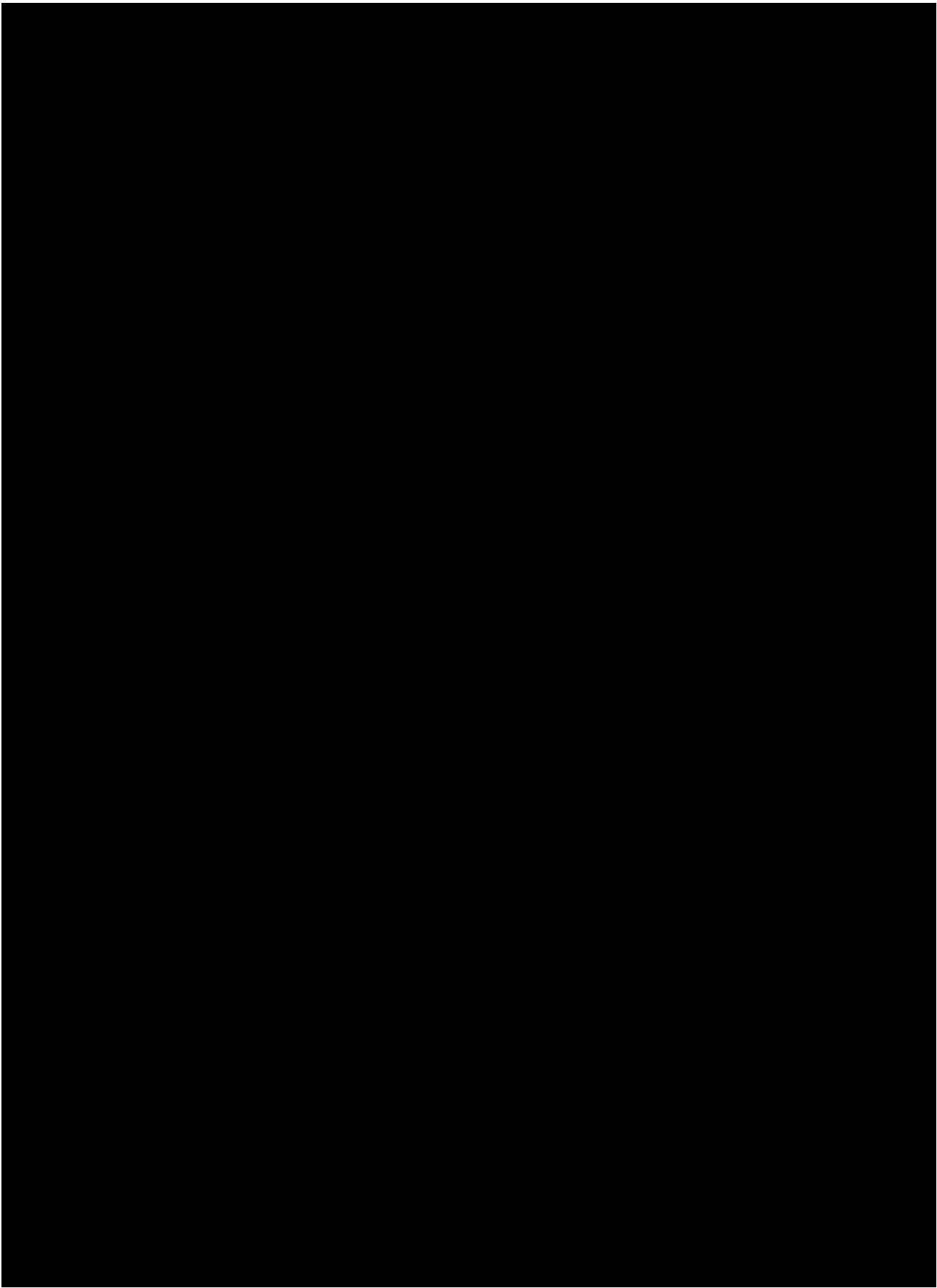


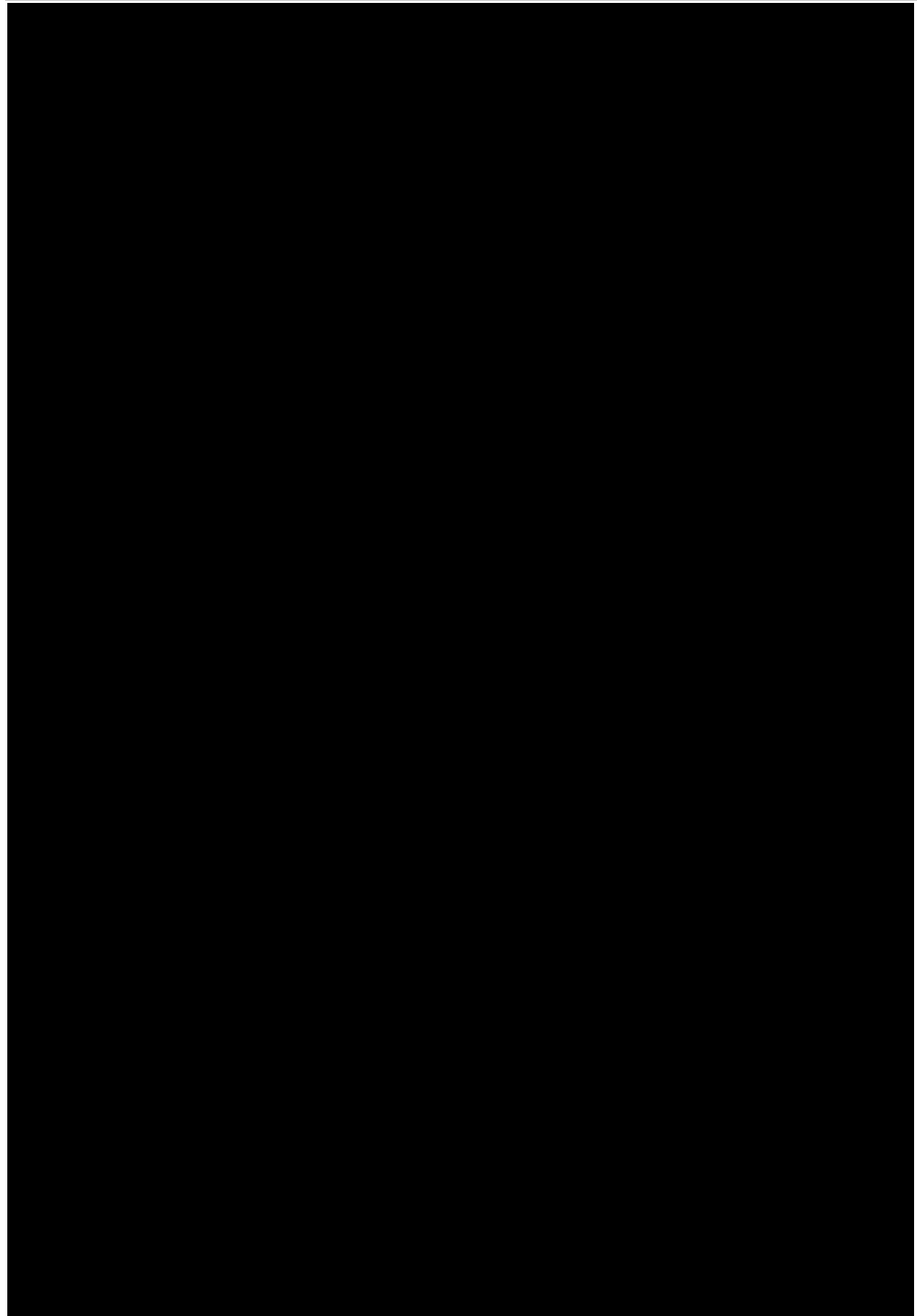


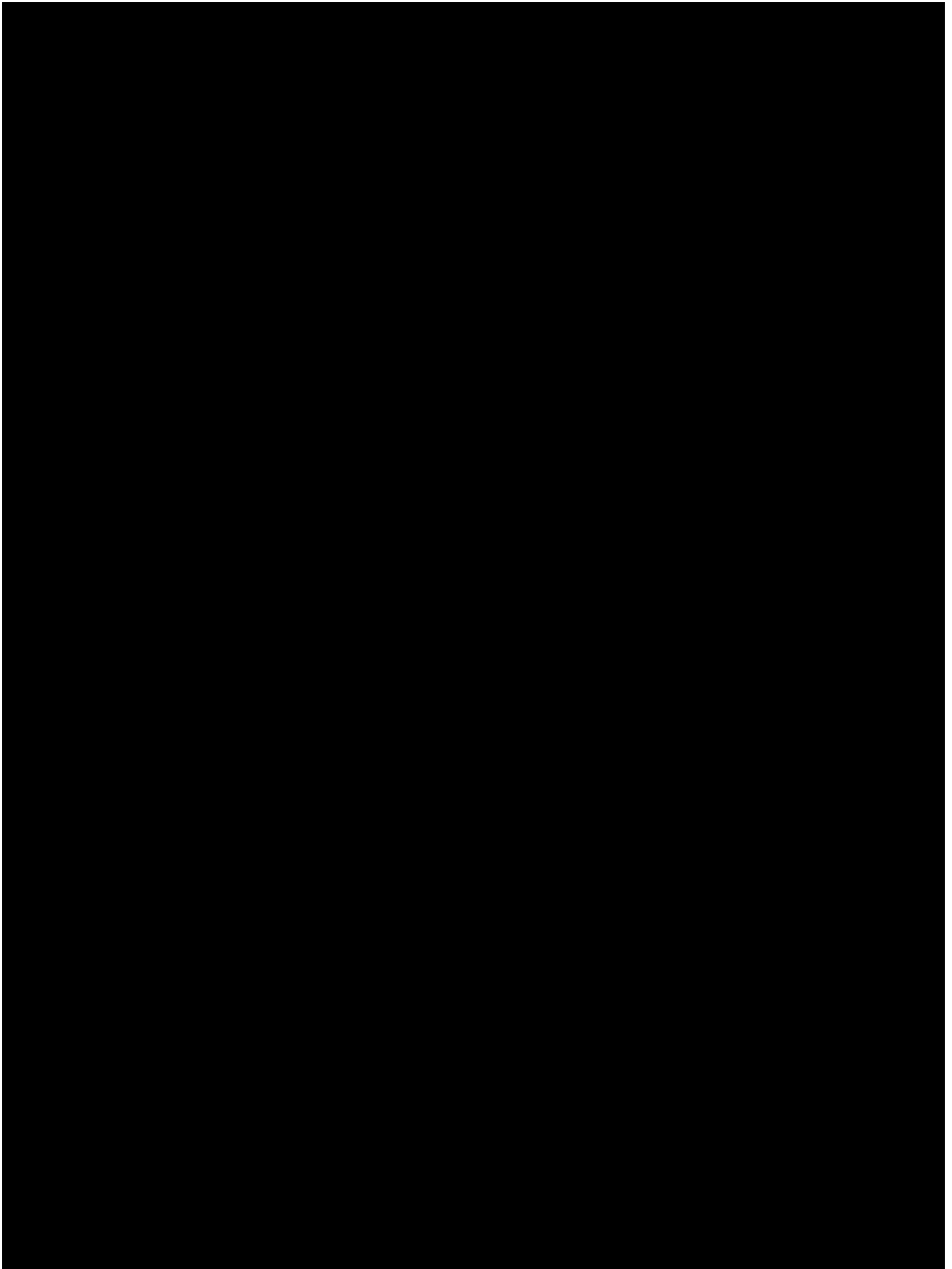


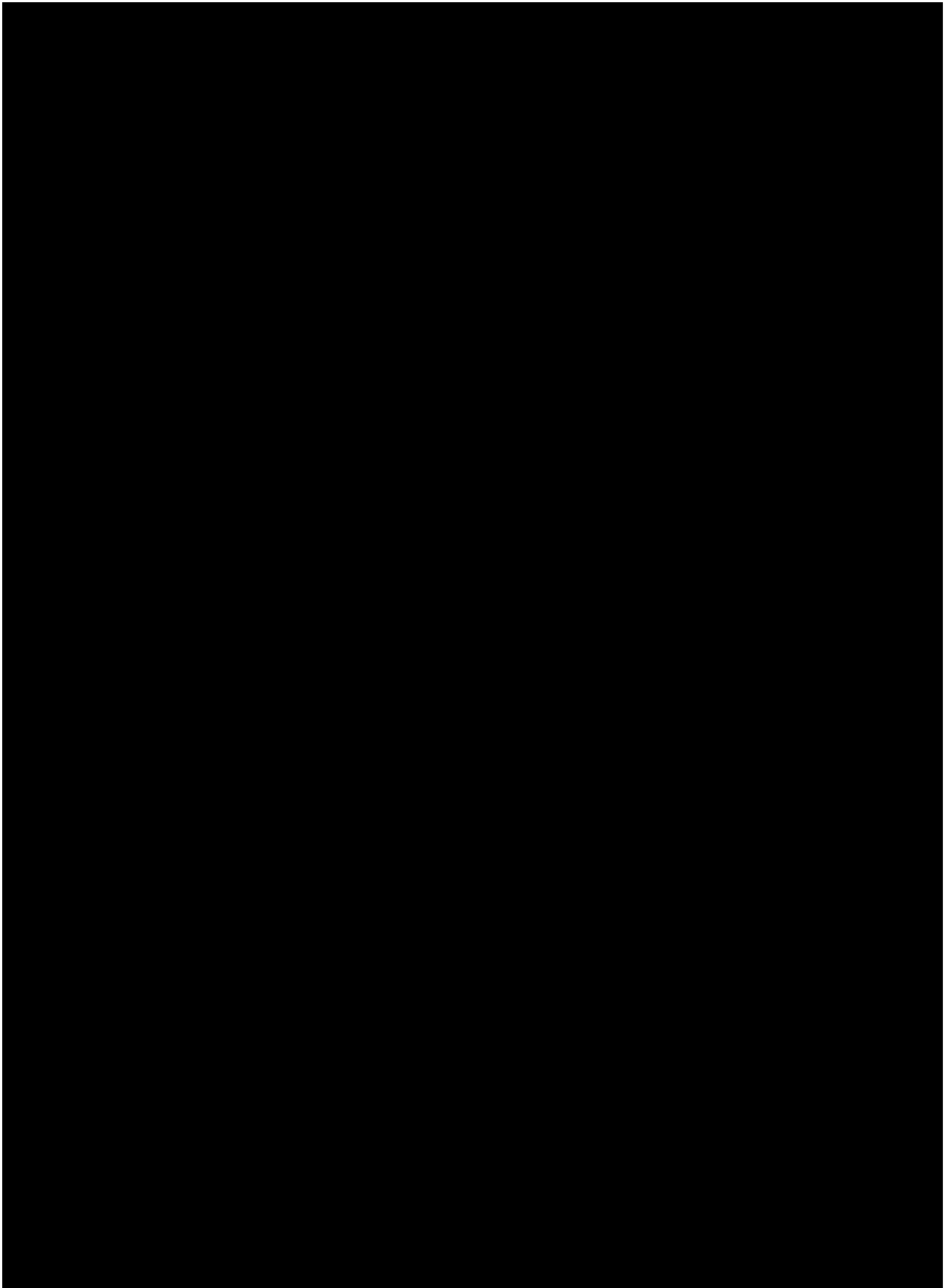


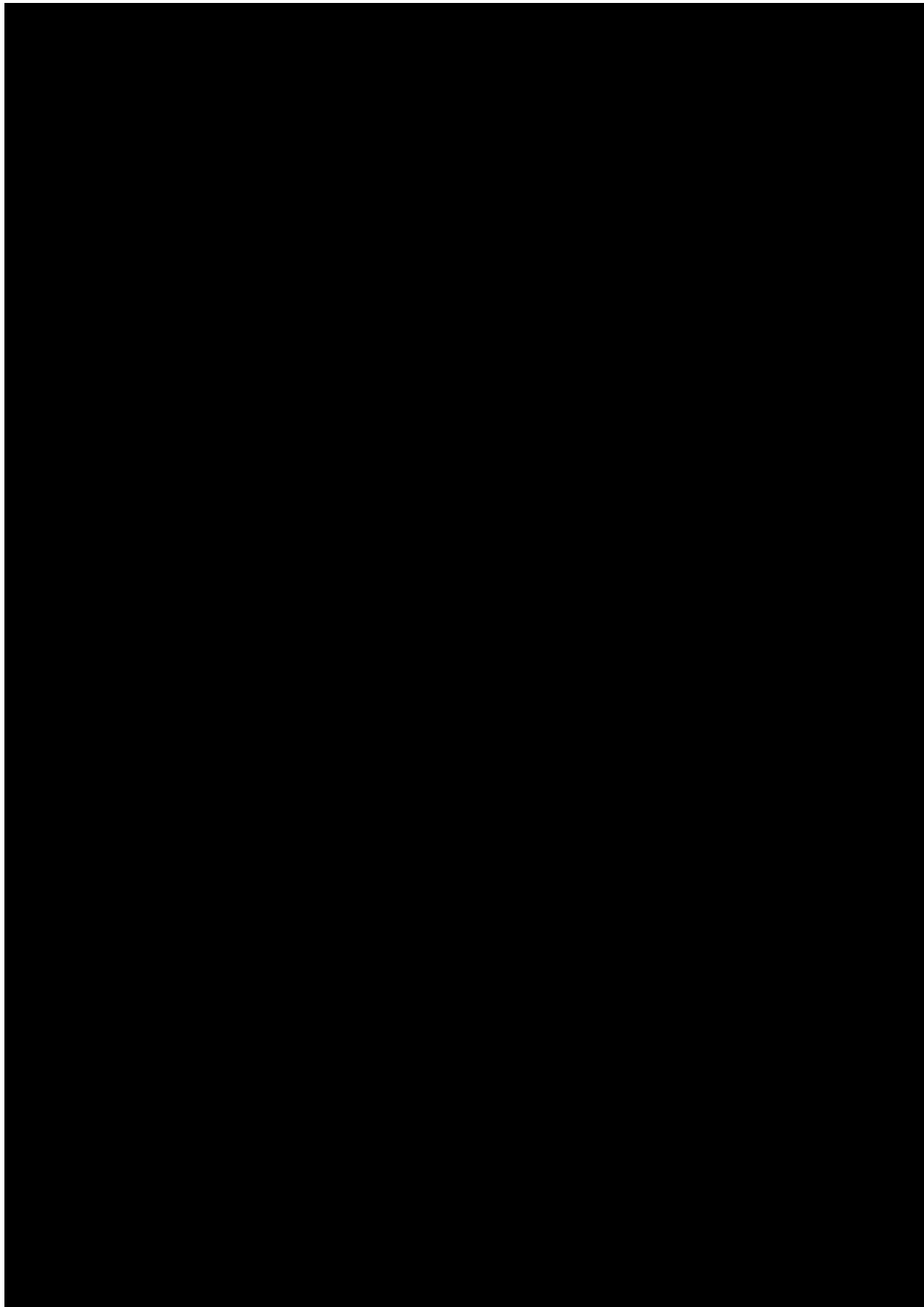


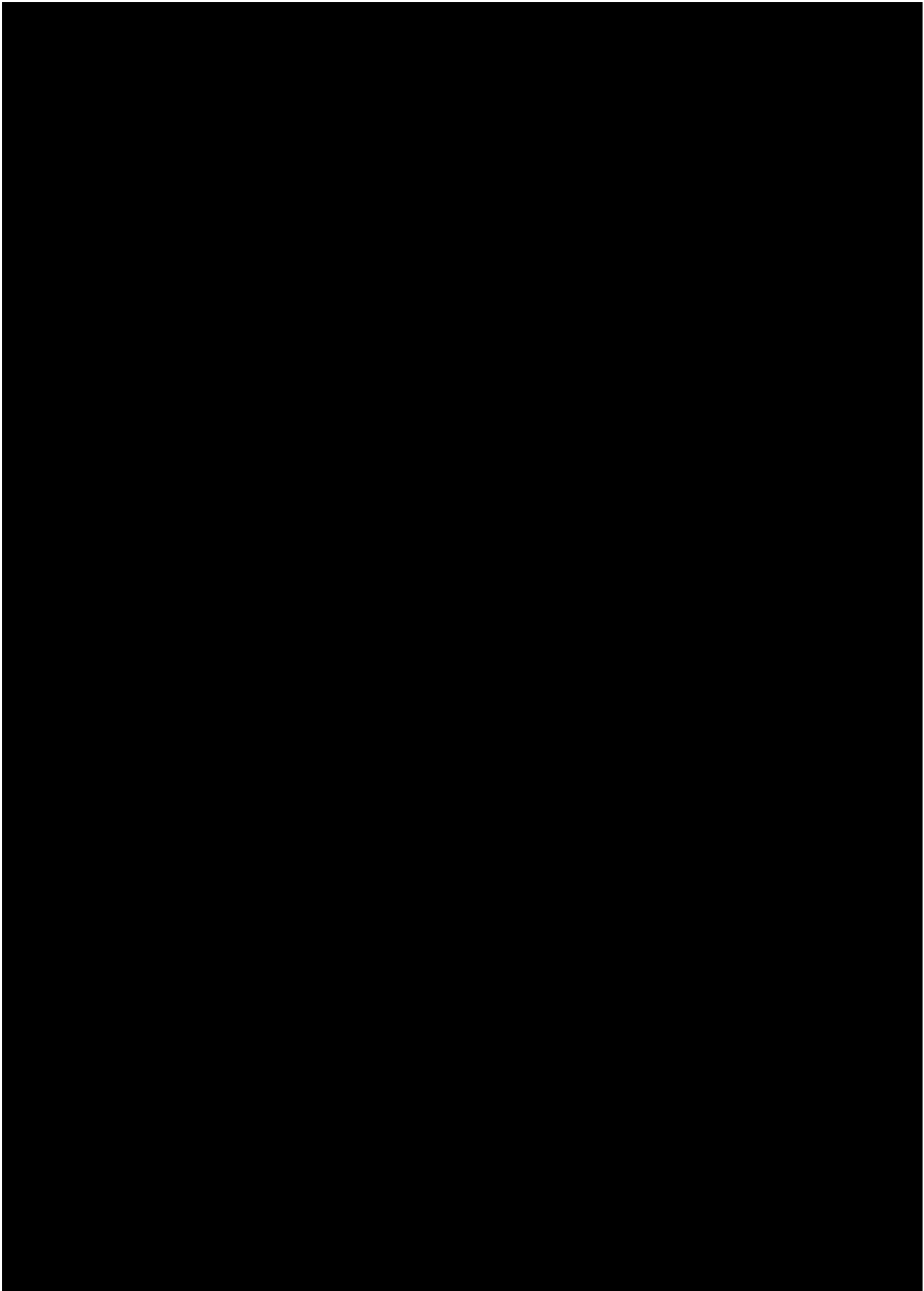




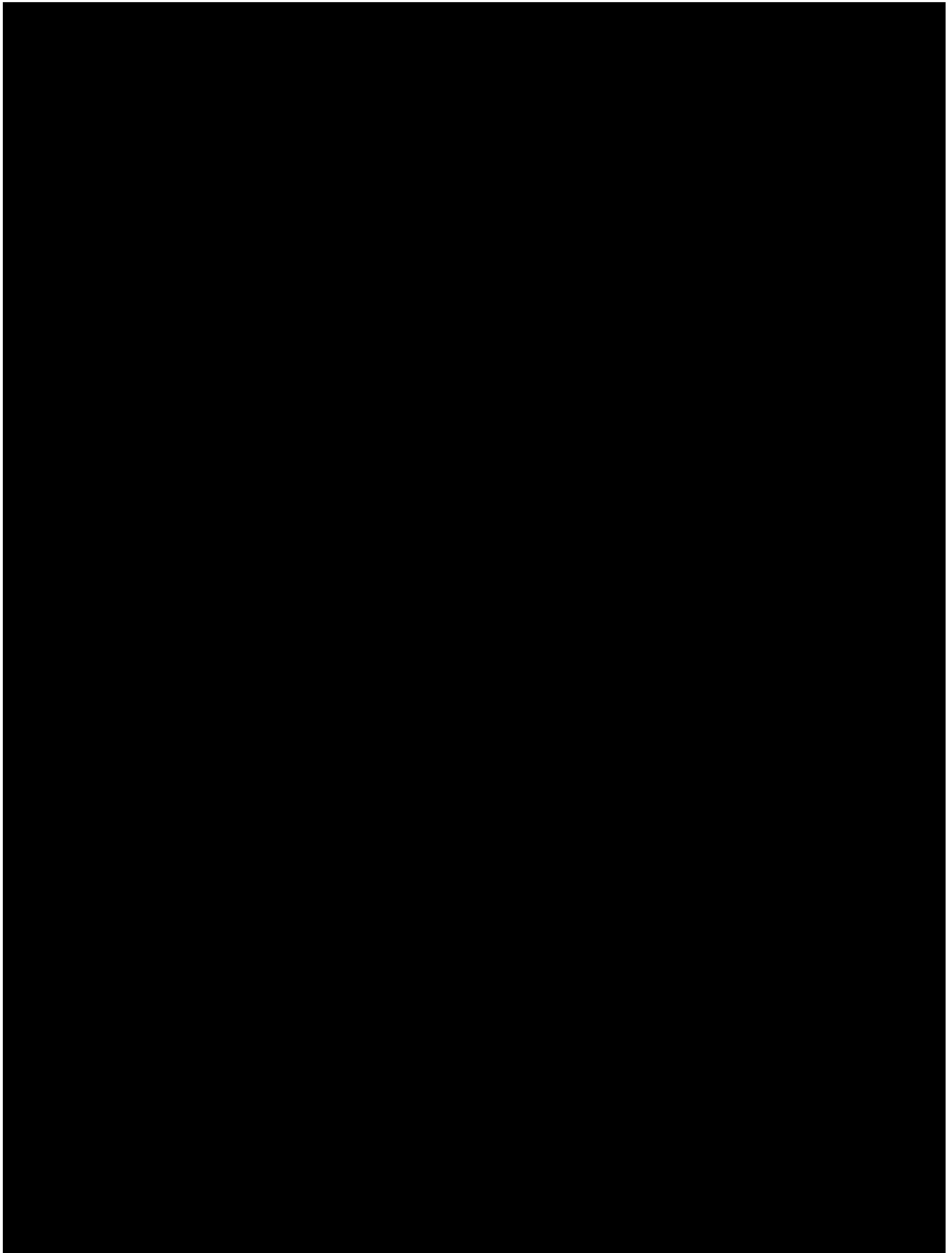


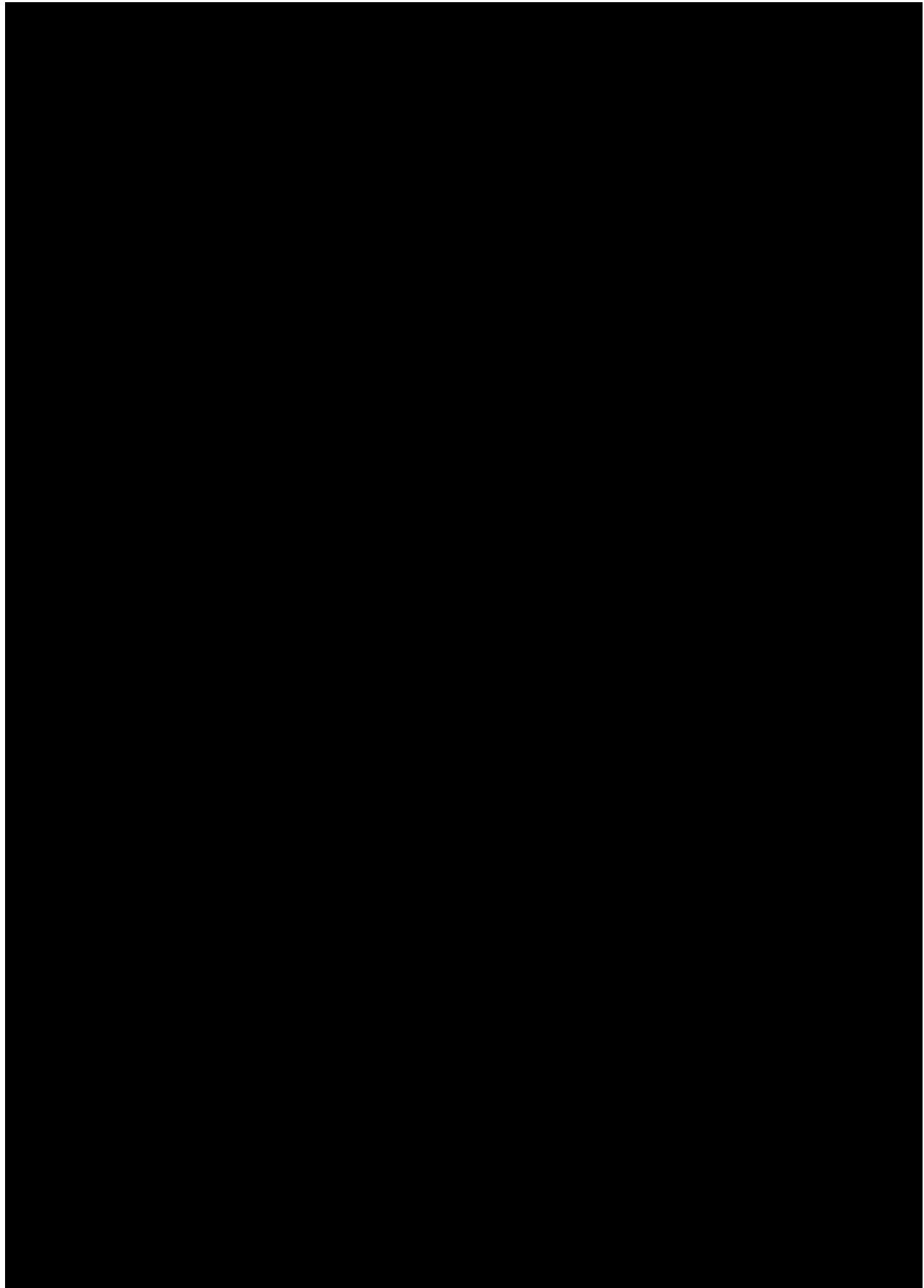


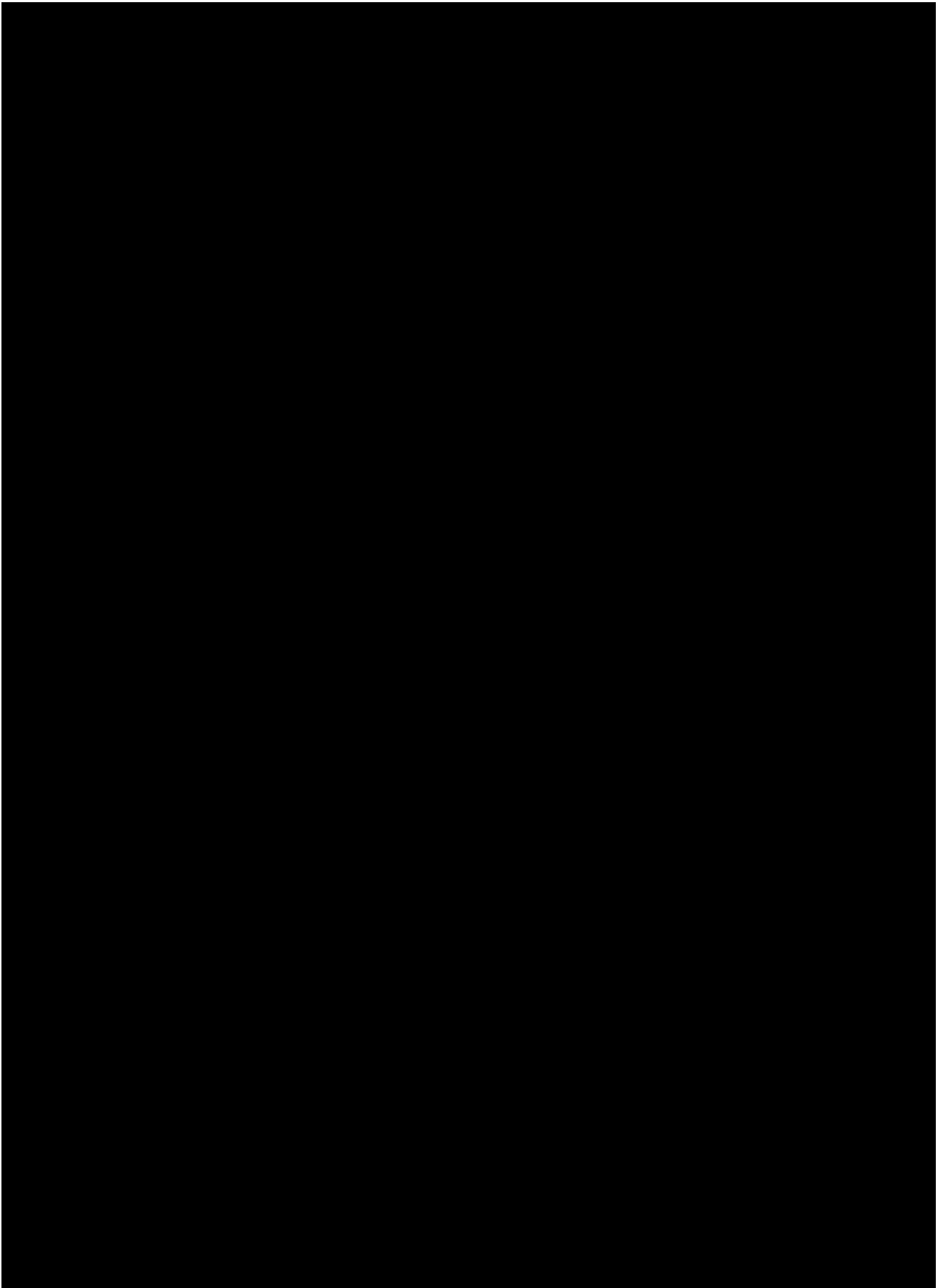












4.2 Transition Plans for Key Staff

Upon contract award, INIT will initiate transition plans for all key project staff that are required for early project phases. This includes Amy Gardner, Thomas Schaich and David Steigleiter. Each will turn their primary attention to ngORCA immediately, and execute the extraction from existing work according to plans that was developed in conjunction with this project schedule. We know that additional effort may be required as they roll onto ngORCA, but we expect that each person this affects it will happen outside of ngORCA hours. This also ties into sections in Tab 2, describing INIT's continuing evolution and hiring plans for staff to manage projects that these resources are on.

Price

Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17



init

The Future of Mobility

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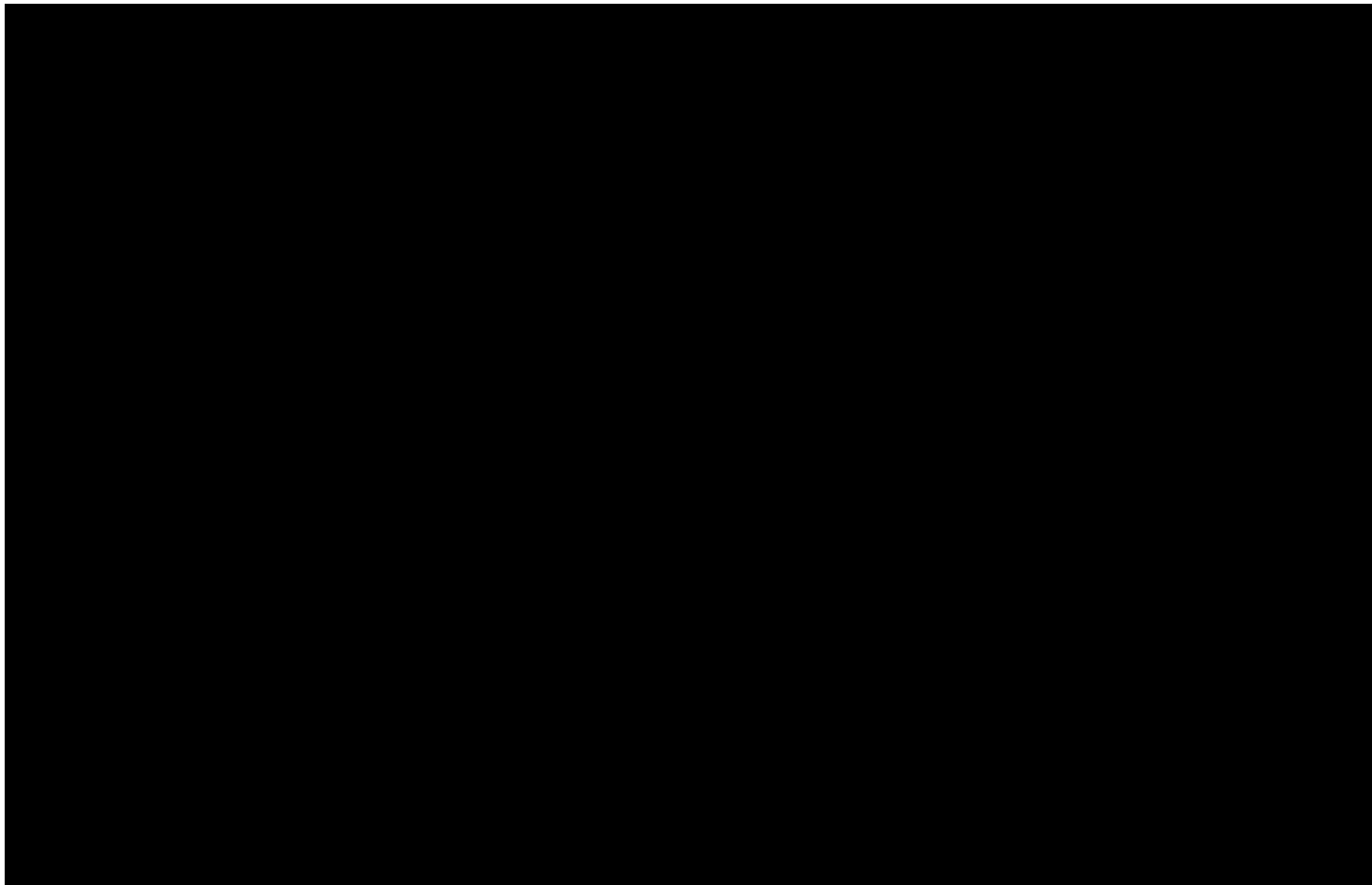
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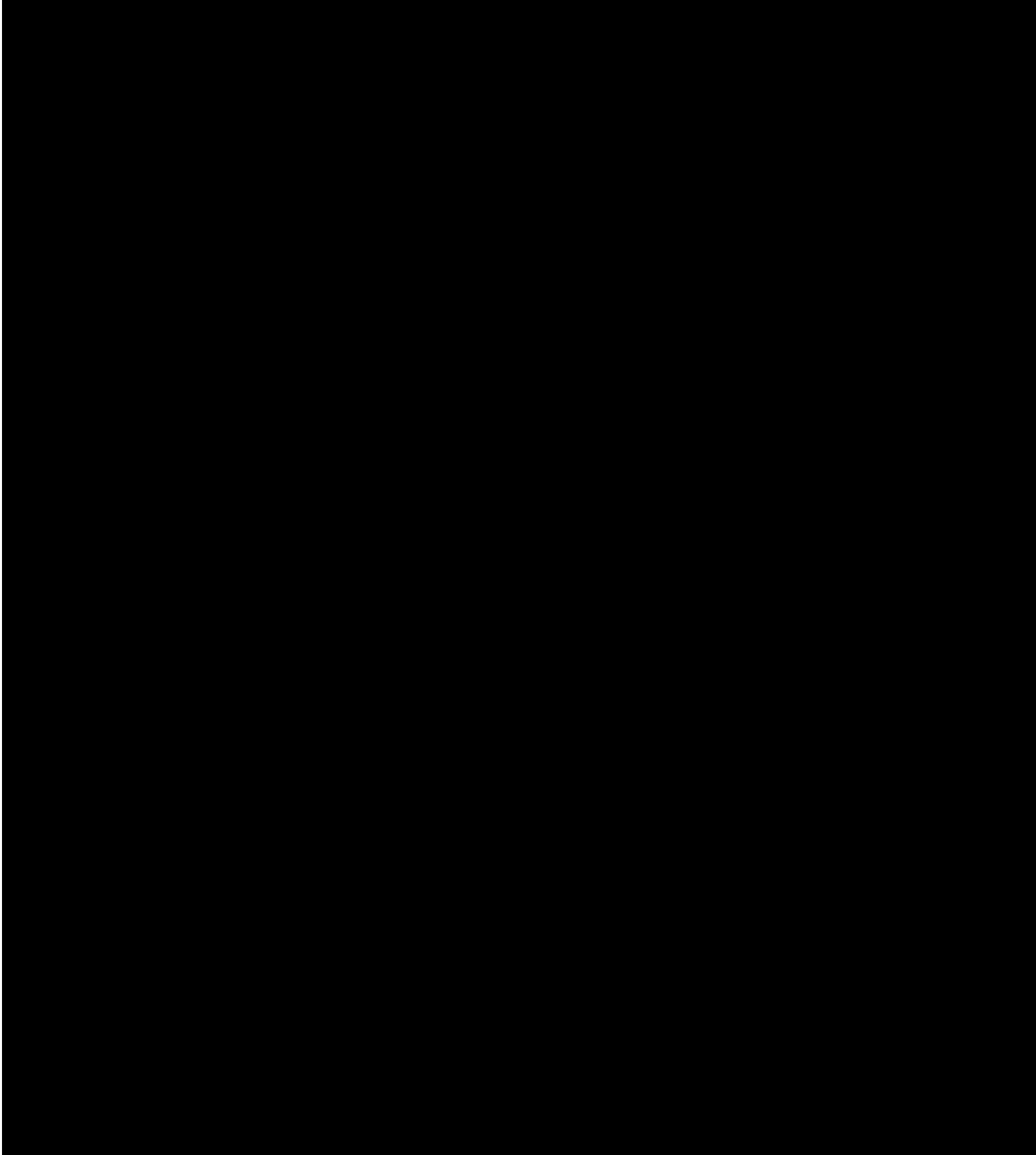
5 INIT's High-Value, Cost-Effective Solution

5.1 Price Forms

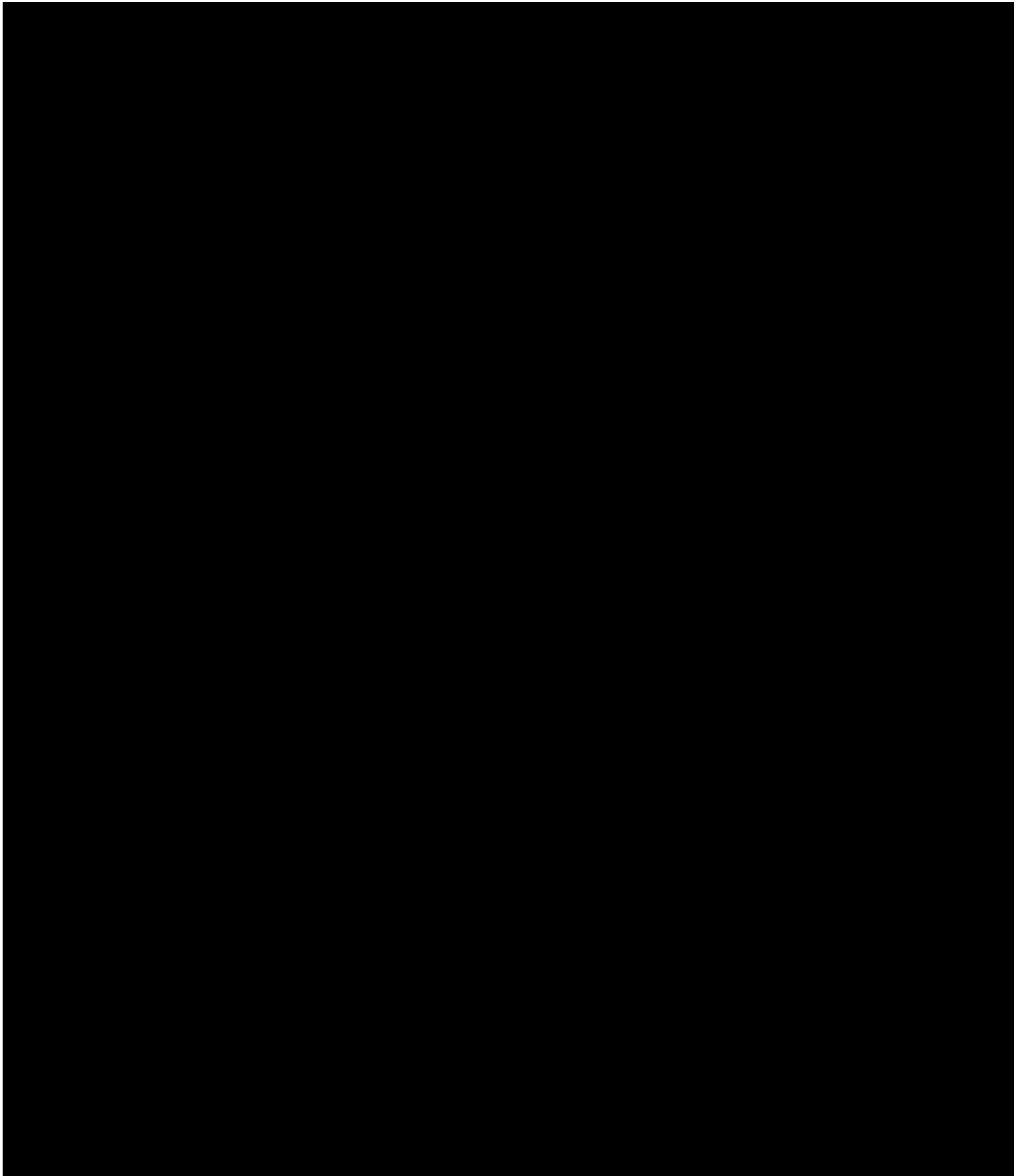
**Next Generation ORCA System Integrator RFP
Proposal Pricing Form**

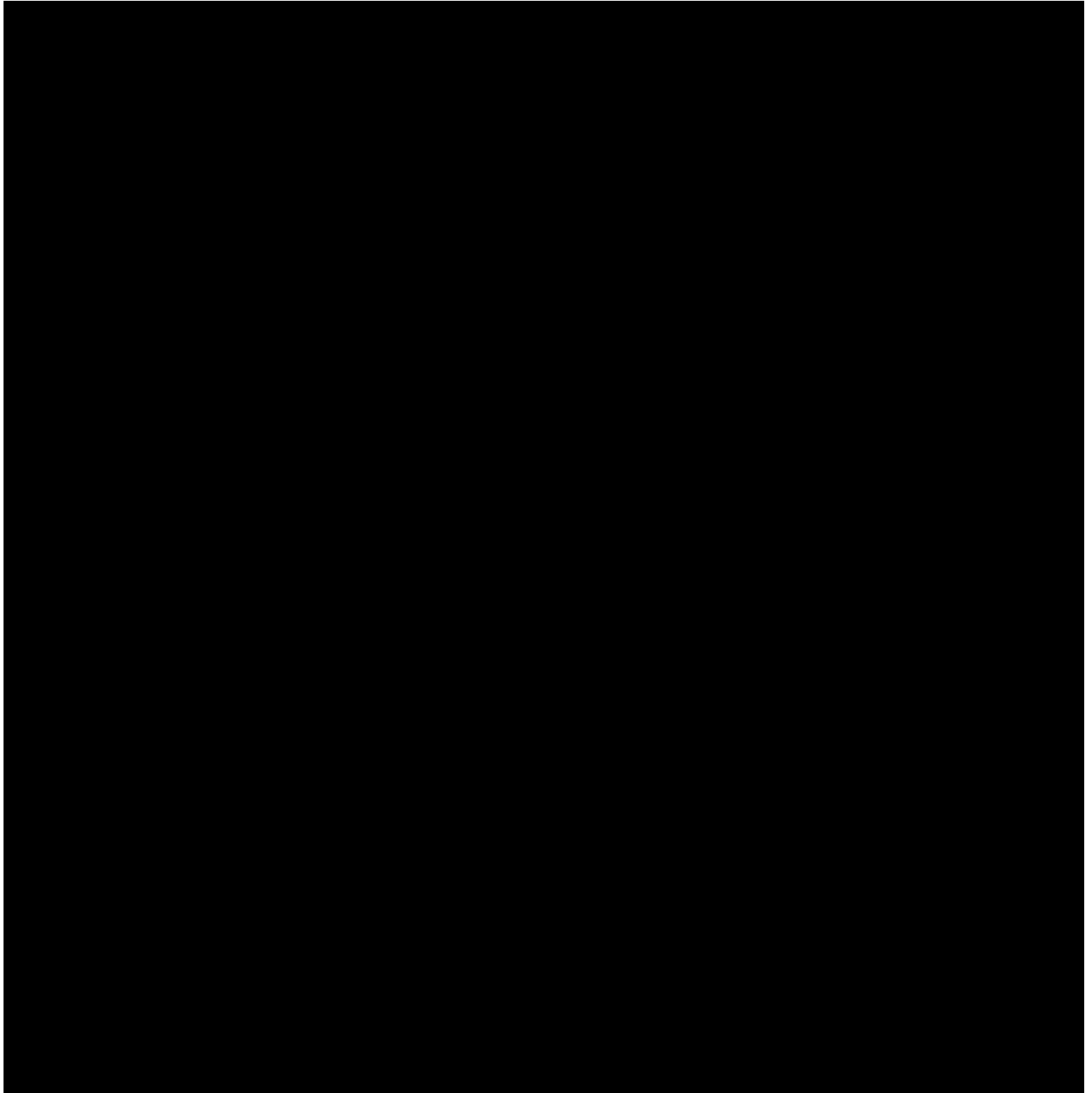


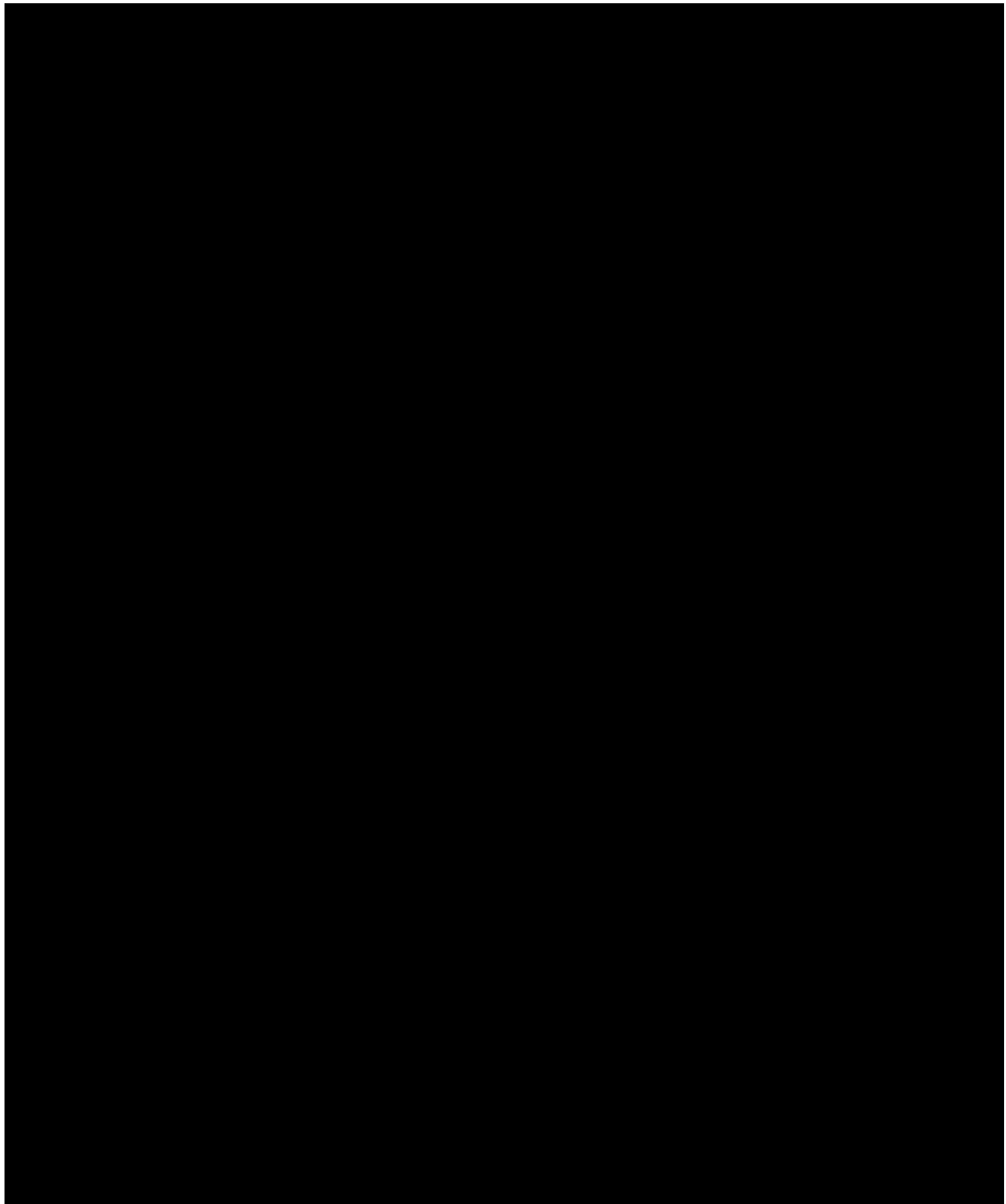
**Next Generation ORCA System Integrator RFP
Pricing Form**

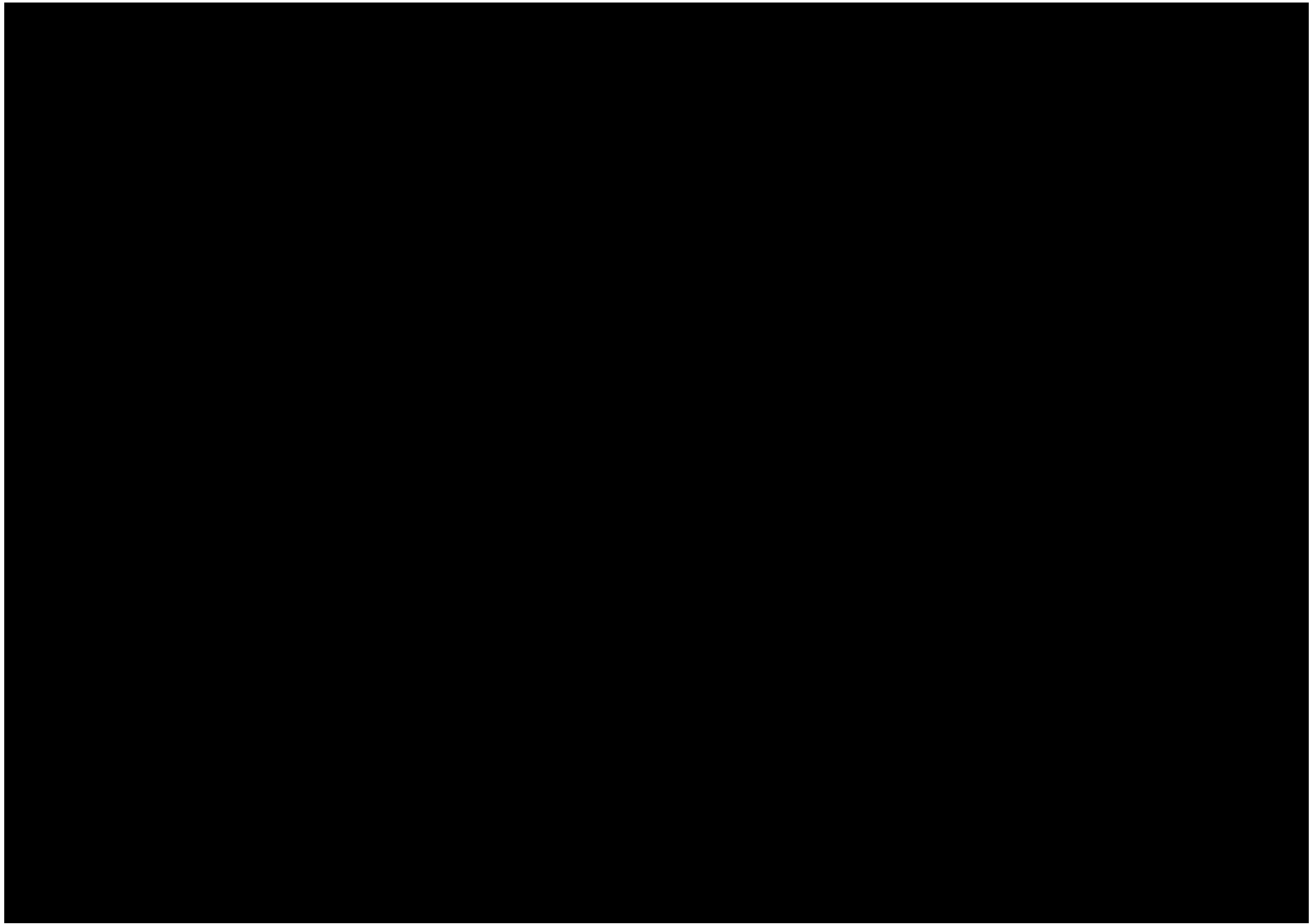






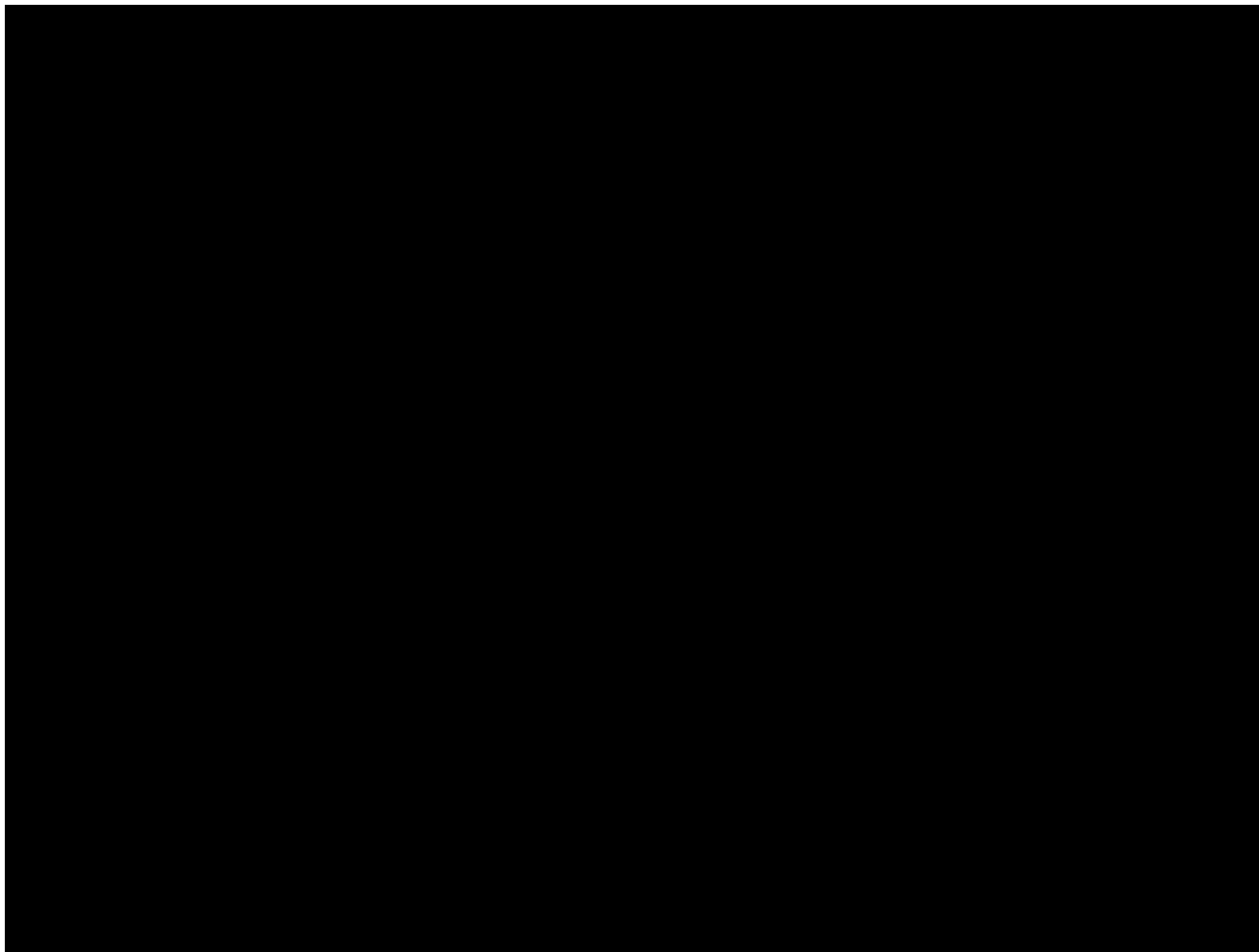


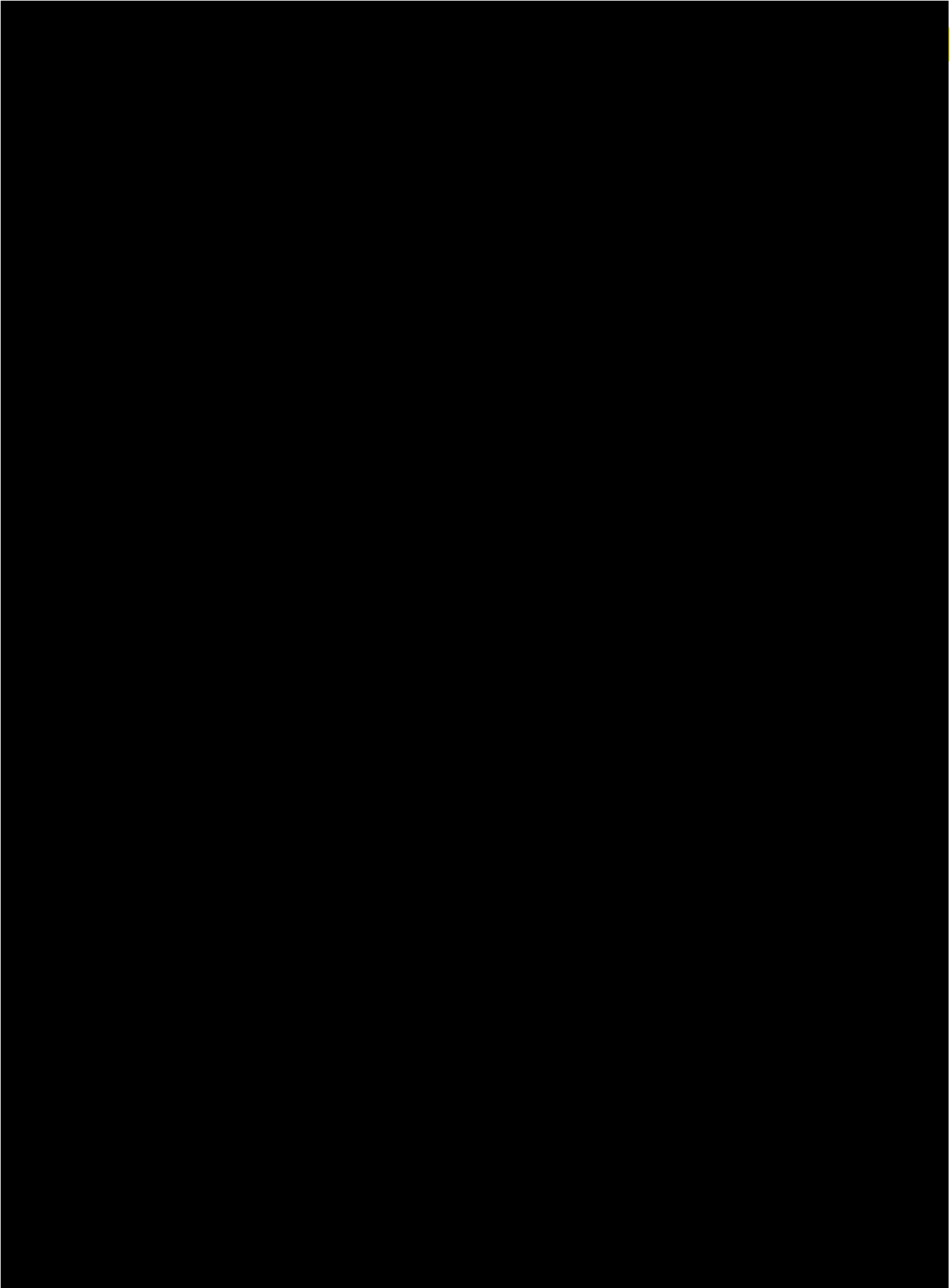


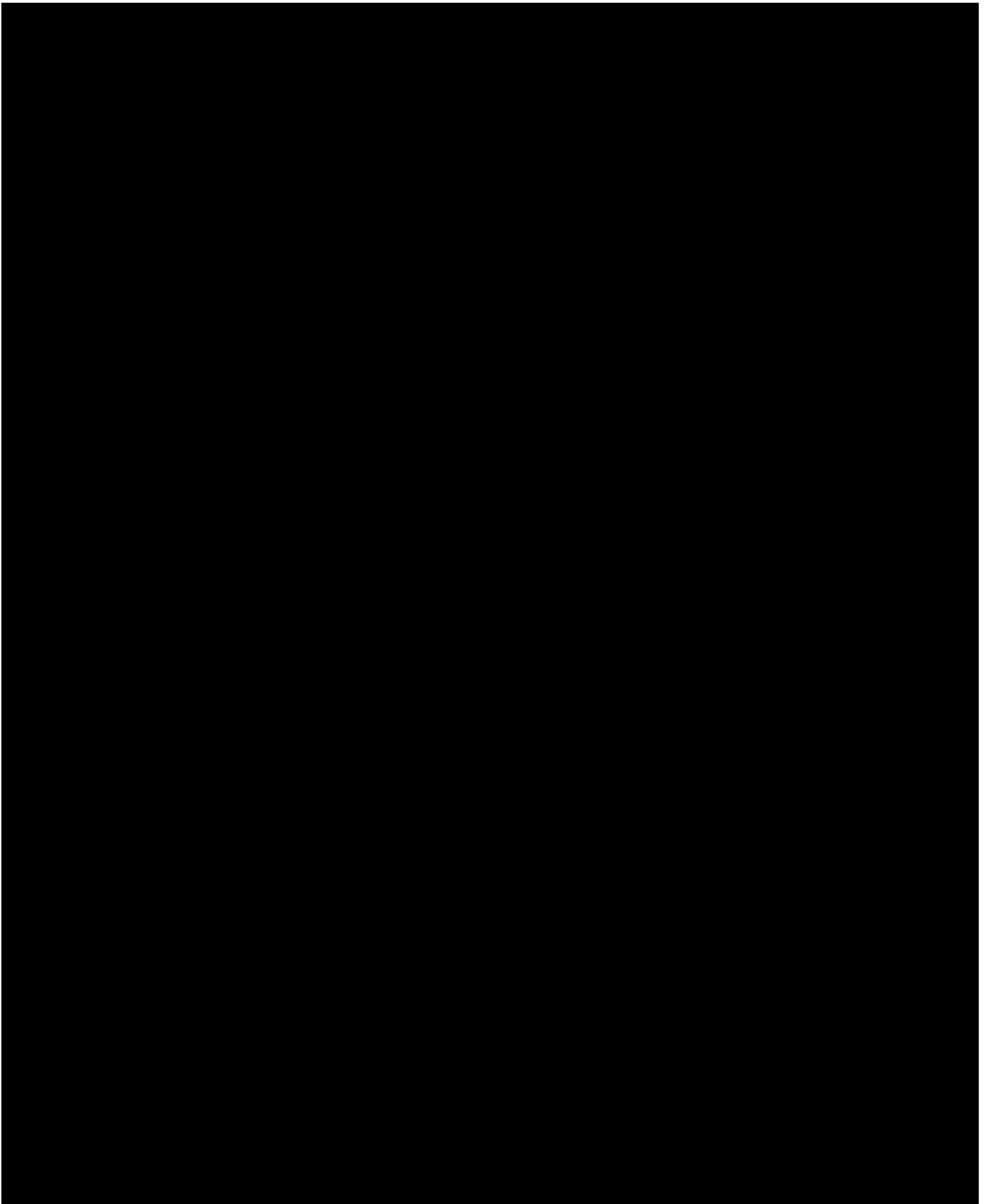


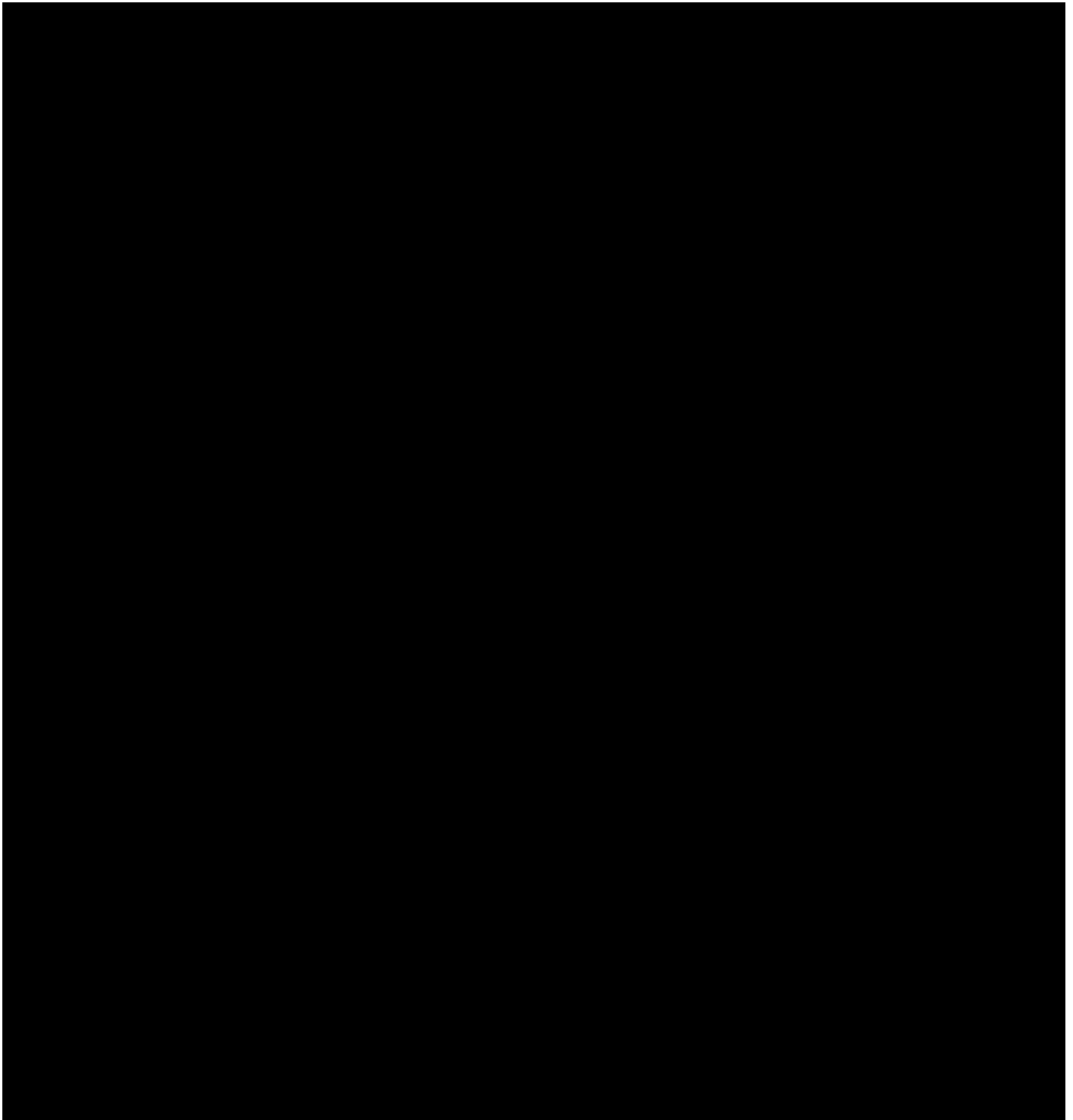


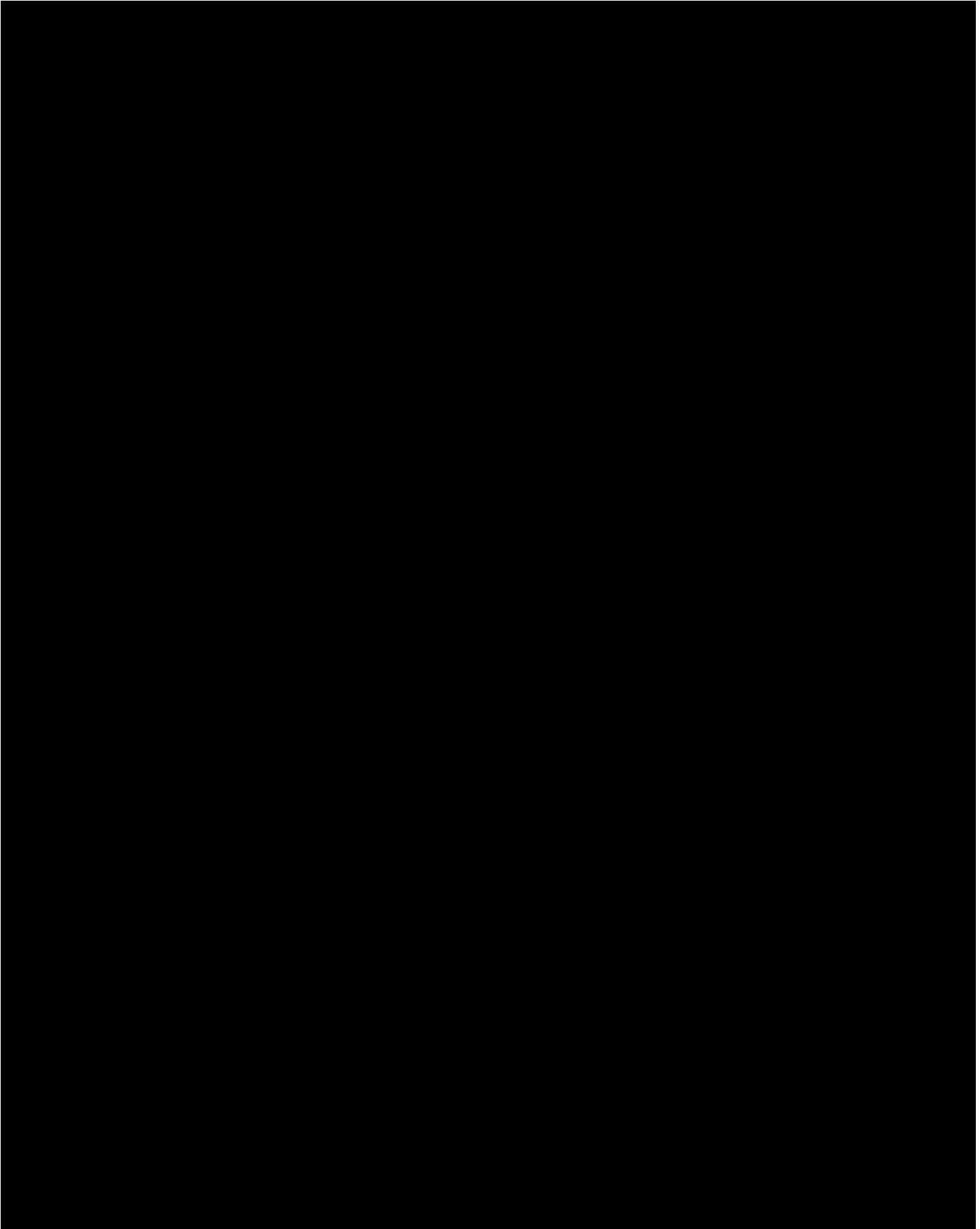
System Integrator -- As-Needed Services

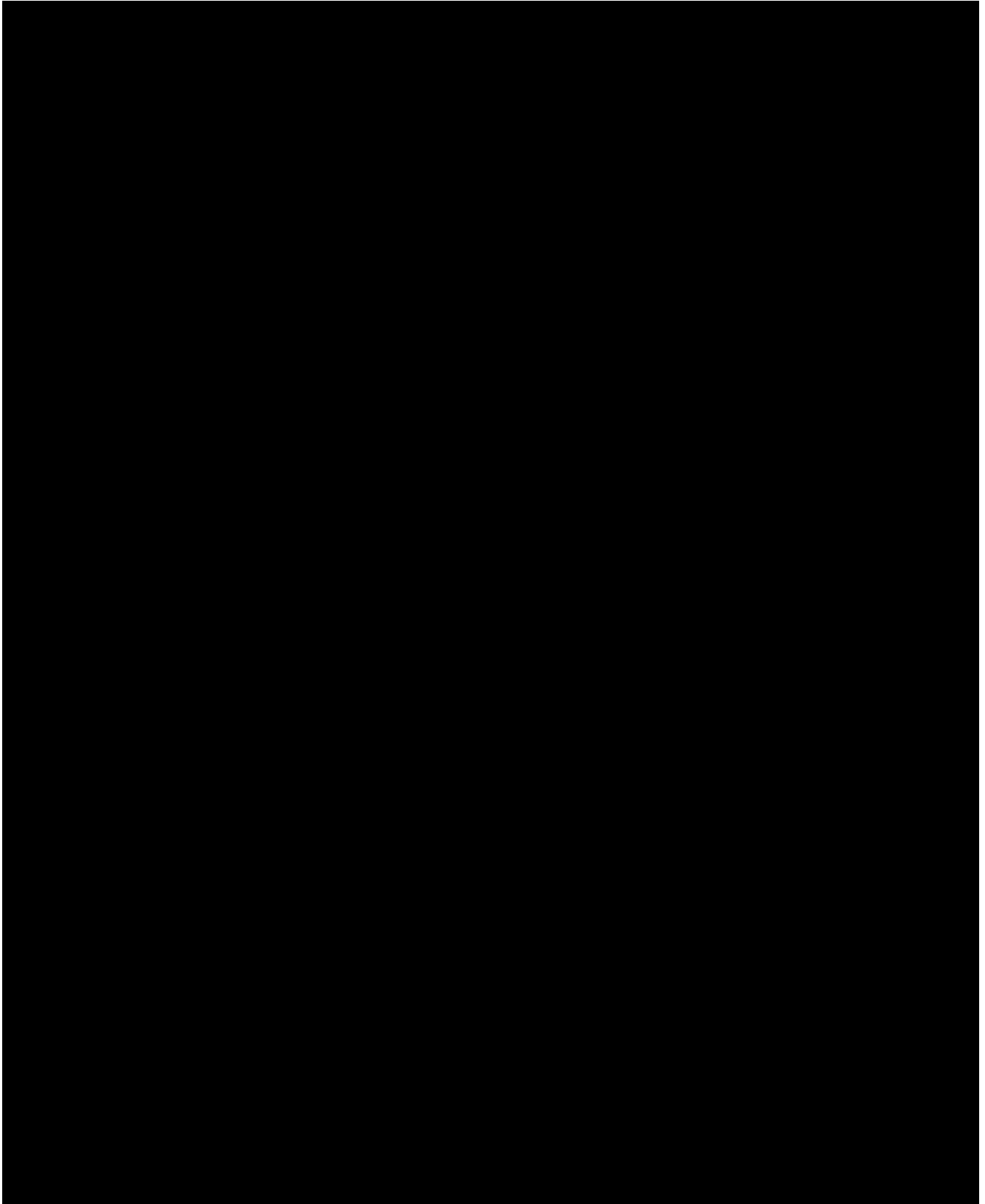


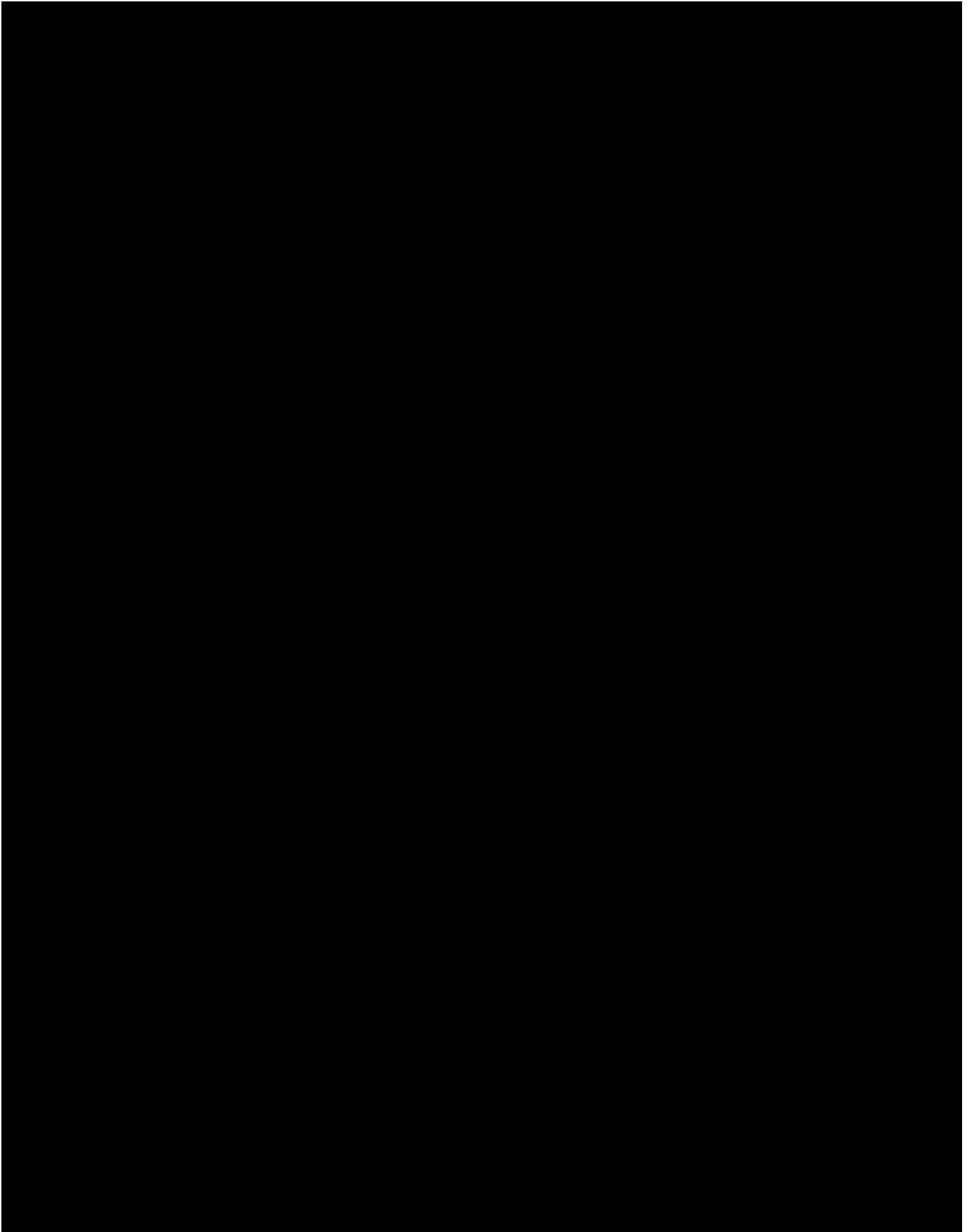


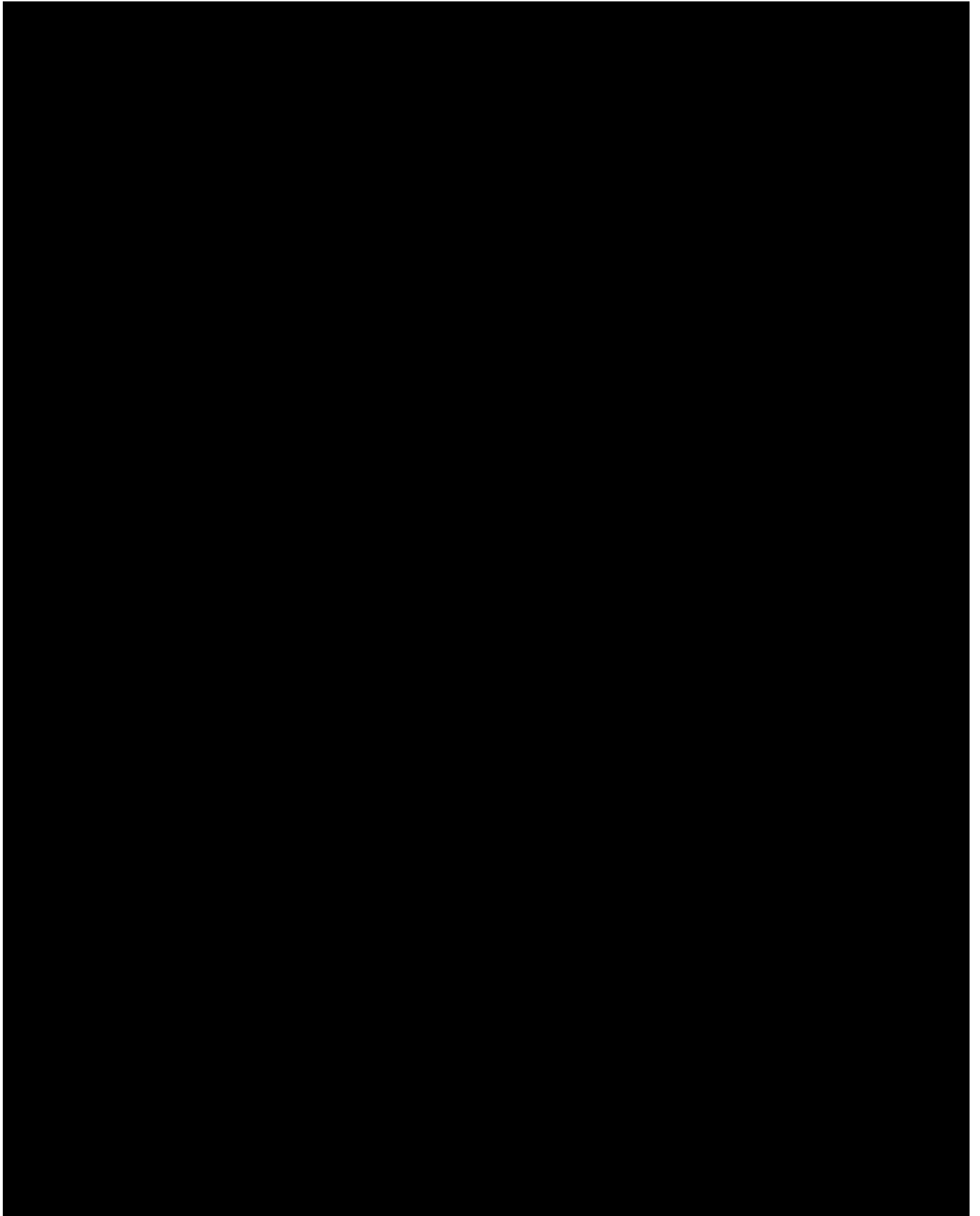


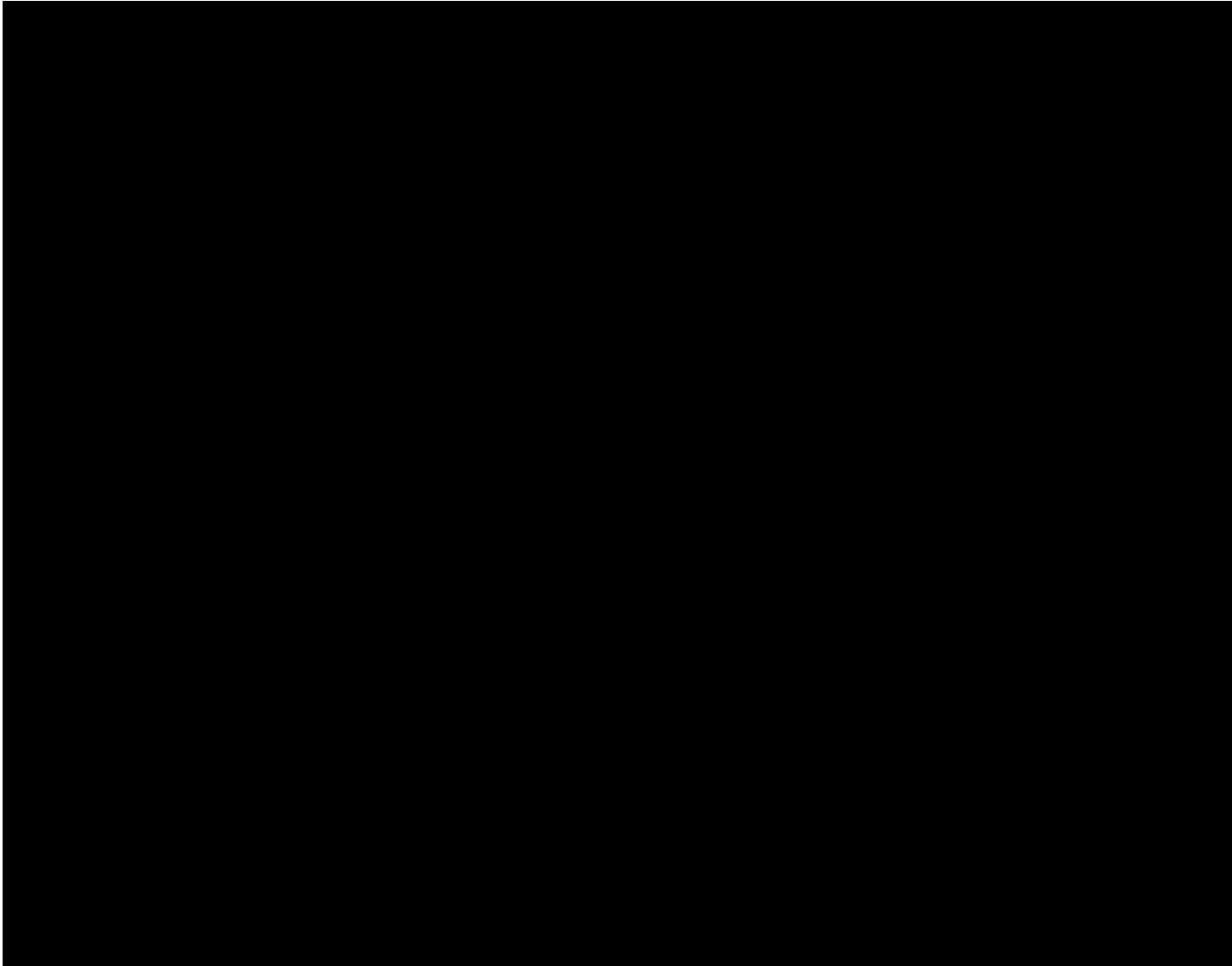






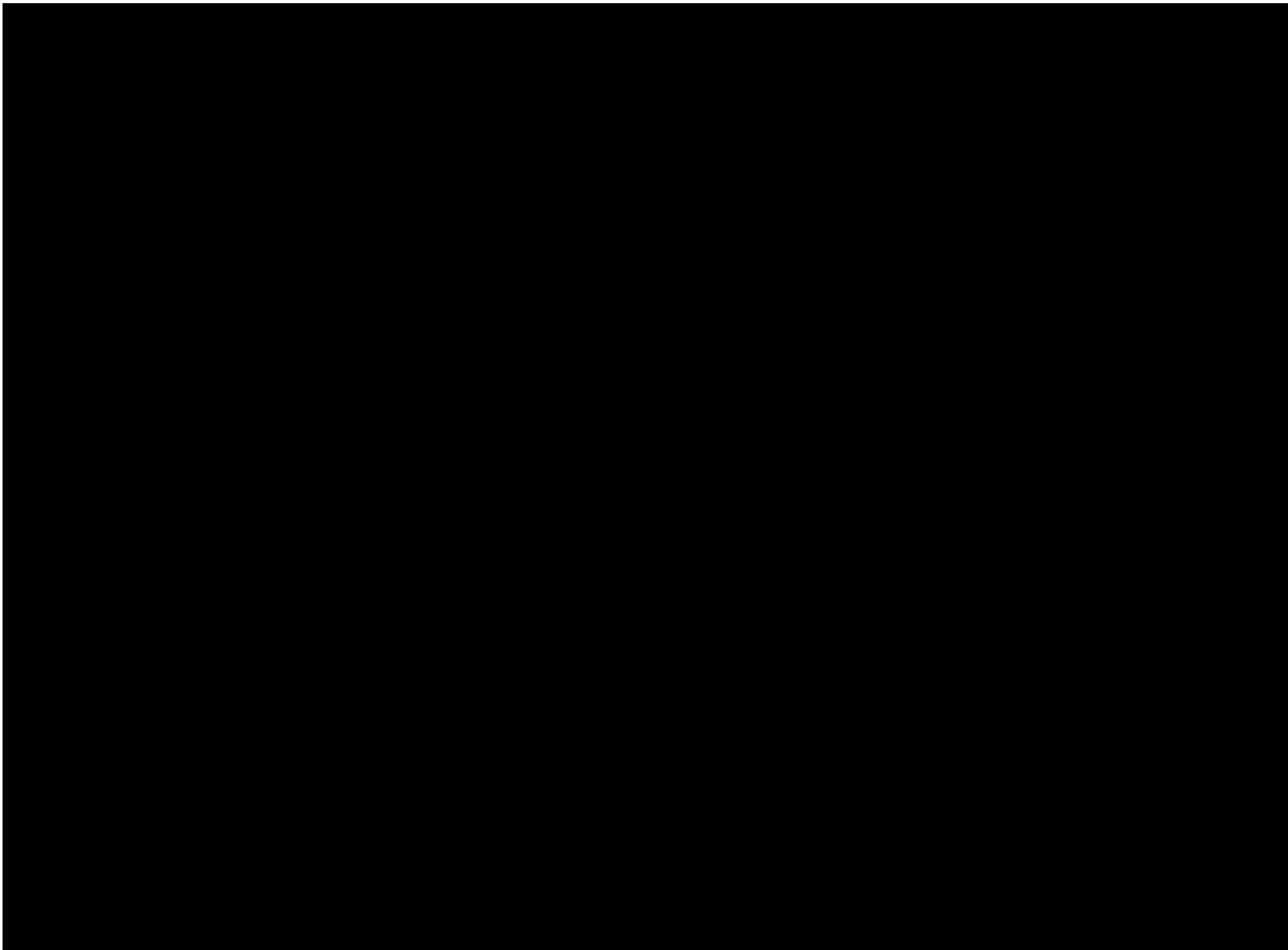


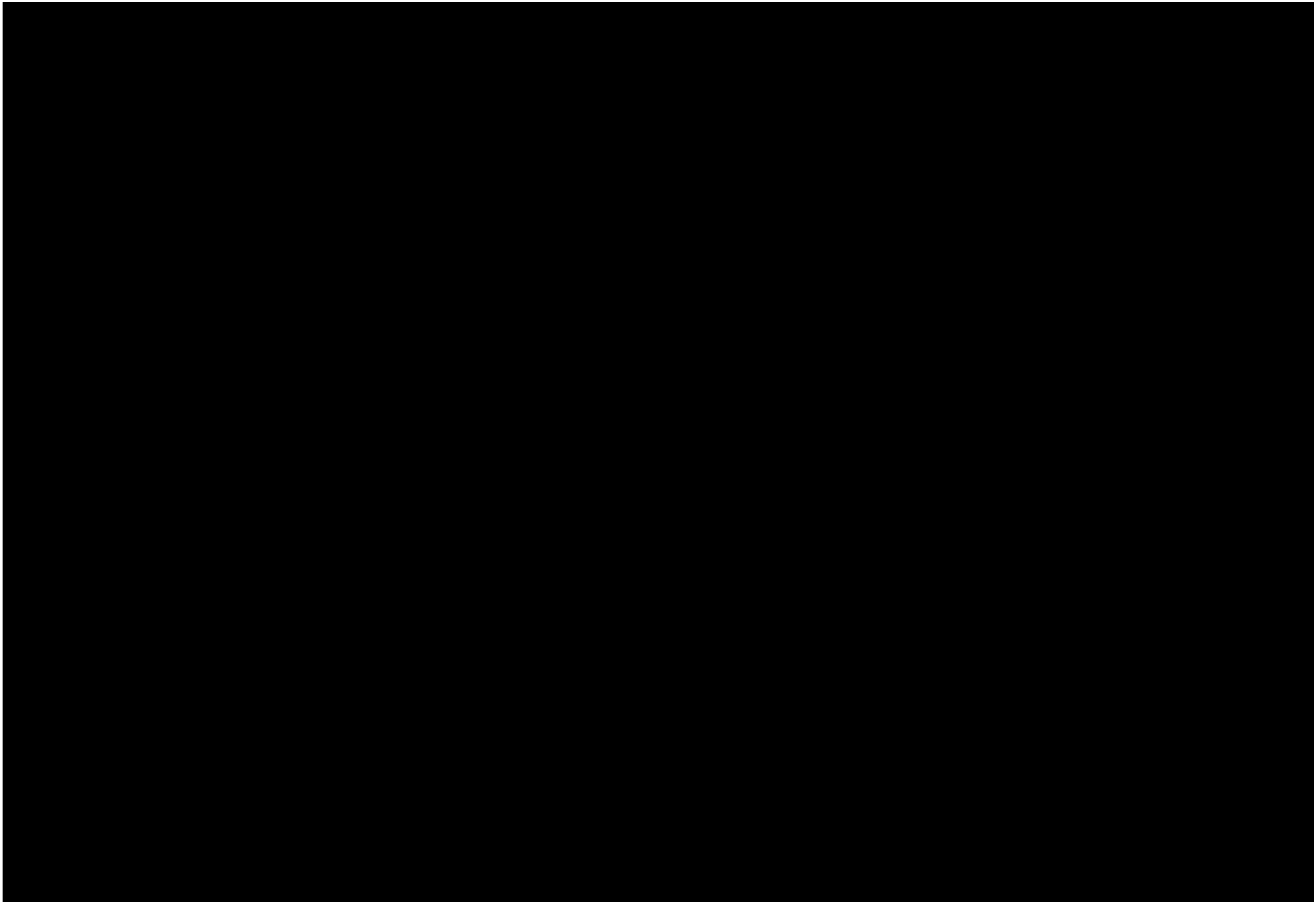






6 Proposed Payment Milestone Schedule





Value Added Features

An Innovative Systems Integrator for Next Generation ORCA

RFP No. RTA/RP 0119-17

Resubmittal March 23, 2018



init

The Future of Mobility

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CONFIDENTIAL SECTIONS:

6.3 Ready for the future – With a fully Open Payments ready system included in the Base System!

6.4 Unique System Features – Only Available with INIT's Automatic Fare Collection System

6.4.a Maintain your own Fare Structure

6.4.b Increase Participation in Institutional Programs and Facilitate New Transit Partnerships

6.4.c Reduce Bus Dwell Time and Operator interaction

6.4.d EMV and Other Standards

6.4.e Seamless Operations through Easy Maintainable Devices

6.5 Real Flexibility in Technology – INIT provides Open API's

6.8 Minimizing Costs, Risks and Delivery Time

6.10 Future Oriented – Constant Refresh of Ideas

6.11 ORCA Next Phase and Potential Future Projects

6.11.1 Expansion to Other Agencies

6.11.2 Full Vanpool Integration

6.11.3 Paratransit Integration with Scheduling Systems

6.11.4 Acceptance of Open Payments

6.11.5 Limited-use fare media

6.11.6 Acceptance of Third-Party issued cards

6.11.7 Fare capping and other loyalty programs

6.11.8 Integration with Other Transportation Providers

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6 Value Added Features

6.1 Introduction

The next generation ORCA project team is seeking a strong and reliable partner that can deliver, fully integrate and operate a high quality regional fare collection system. INIT's product suite and our experience as a System Integrator is the perfect match providing exceptional Value Add and unique System Features.

This document should outline unique features and explicit strength of INIT's fare collection solution. We think that certain components of our system, e.g. the very strong API platform, are unique to INIT and will provide additional value to the project, even if the feature itself is in the Statement of Work.

Having implemented more than fifty Electronic Fare Collection Systems, our system has advanced and matured based on a strong cooperation with our worldwide community of Transit Agencies. With INIT being a leading vendor in Automated Fare Collection and Intelligent Transportation Systems (ITS), INIT is uniquely qualified to understand your needs.

The following sections of this document highlight unique Added Values and Benefits with INIT:

- Swift and Dependable Implementation – INIT is the Preferred Provider of Account Based AFC Systems
- Unique System Features – With INITs most advanced Fare Collection System
- Ready for the Future – Open Payments developed and included in the Base System
- Real Flexibility in Technology – INIT provides open API's to Simplify Integration
- Environmental Value – Waste Management
- Knowledge Sharing – Engaged INIT Customers
- Minimizing Costs, Risks and Delivery Time – Engineered in Germany, Made in America
- Local to Seattle – INIT knows the Puget Sound region
- Future Oriented – Constant Refresh of Ideas

6.2 Swift and Dependable Implementation – Unique Knowledge in Account Based Systems

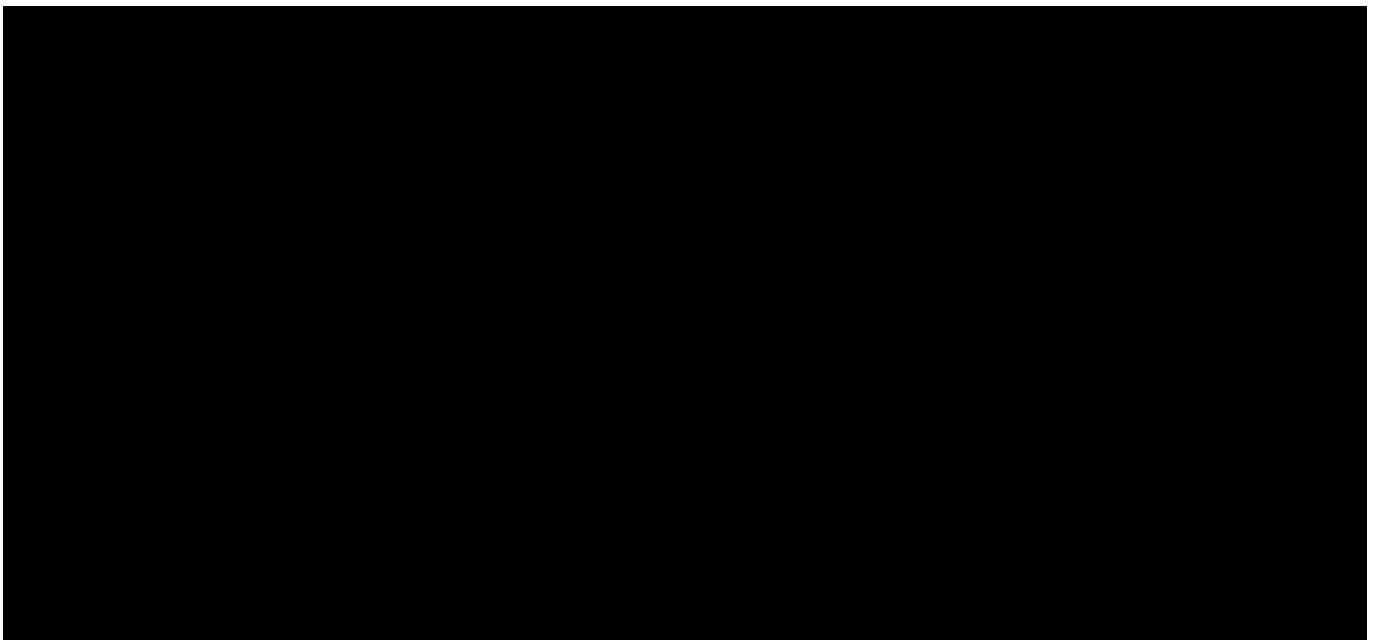
No other AFC vendor is implementing and integrating “state of the art” Account Based Automated Fare Collection Systems at the high level and expertise that INIT is currently providing. After a very thorough analysis of your RFP, we are pleased to state that your requirements are very similar to our on-going implementations of the Automated Fare Collection projects listed below. Due to the similarity in scope and design featuring Account Based Systems, Open APIs and more, INIT will be able to provide a fast and reliable implementation of the next generation ORCA system.

All components offered are based on proven technology. Building on the Portland HOP FastPass implementation, as well as recent fare system projects, INIT can significantly reduce the risk and accelerate the implementation process.

Account Based INIT Fare Collection Systems:

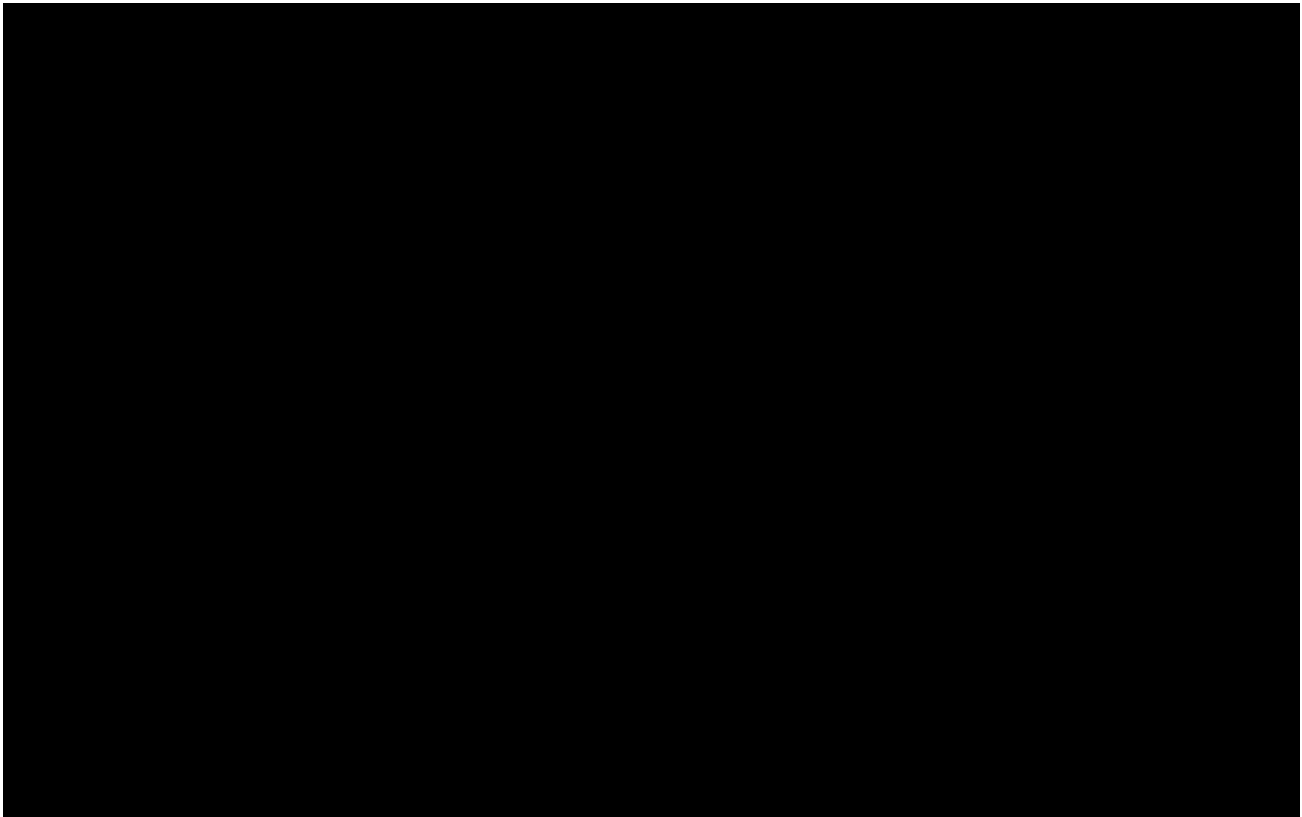
- Portland OR (700 vehicles, 400 platform validators) – In revenue service
- Grand Rapids MI (150 vehicles and 35 platform validators)
- Honolulu HI (550 vehicles, 110 Ticket Vending Machines, 139 Faregates)
- Tampa FL (629 vehicles)
- Turku Finland (260 vehicles) – in revenue service
- Rhode Island Providence Transit Agency (200)

6.3 Ready for the Future – With Full Open Payments Ready System Included in the Base System!

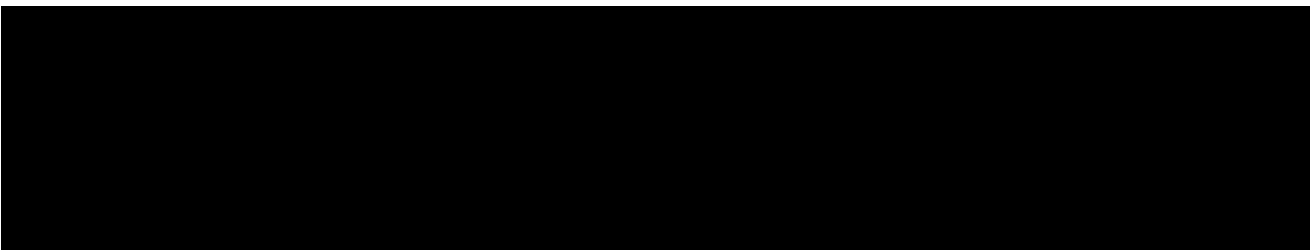


6.4 Unique System Features – Only Available with INIT's Automatic Fare Collection System

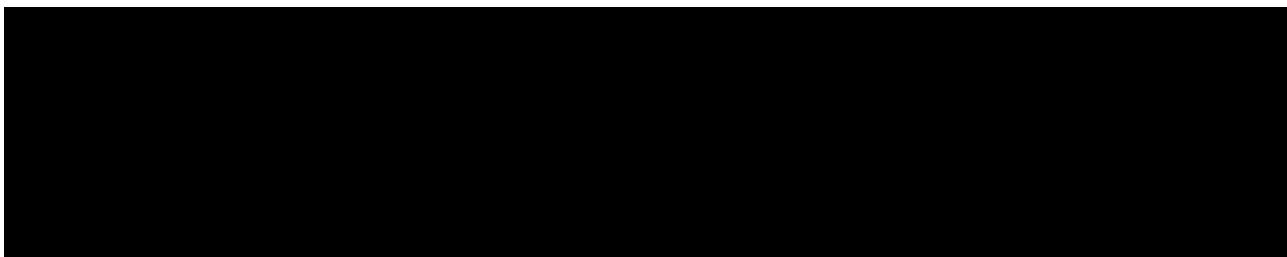
6.4.1 Maintain your own Fare Structure



6.4.2 Increase Participation in Institutional Programs and Facilitate New Transit Partnerships

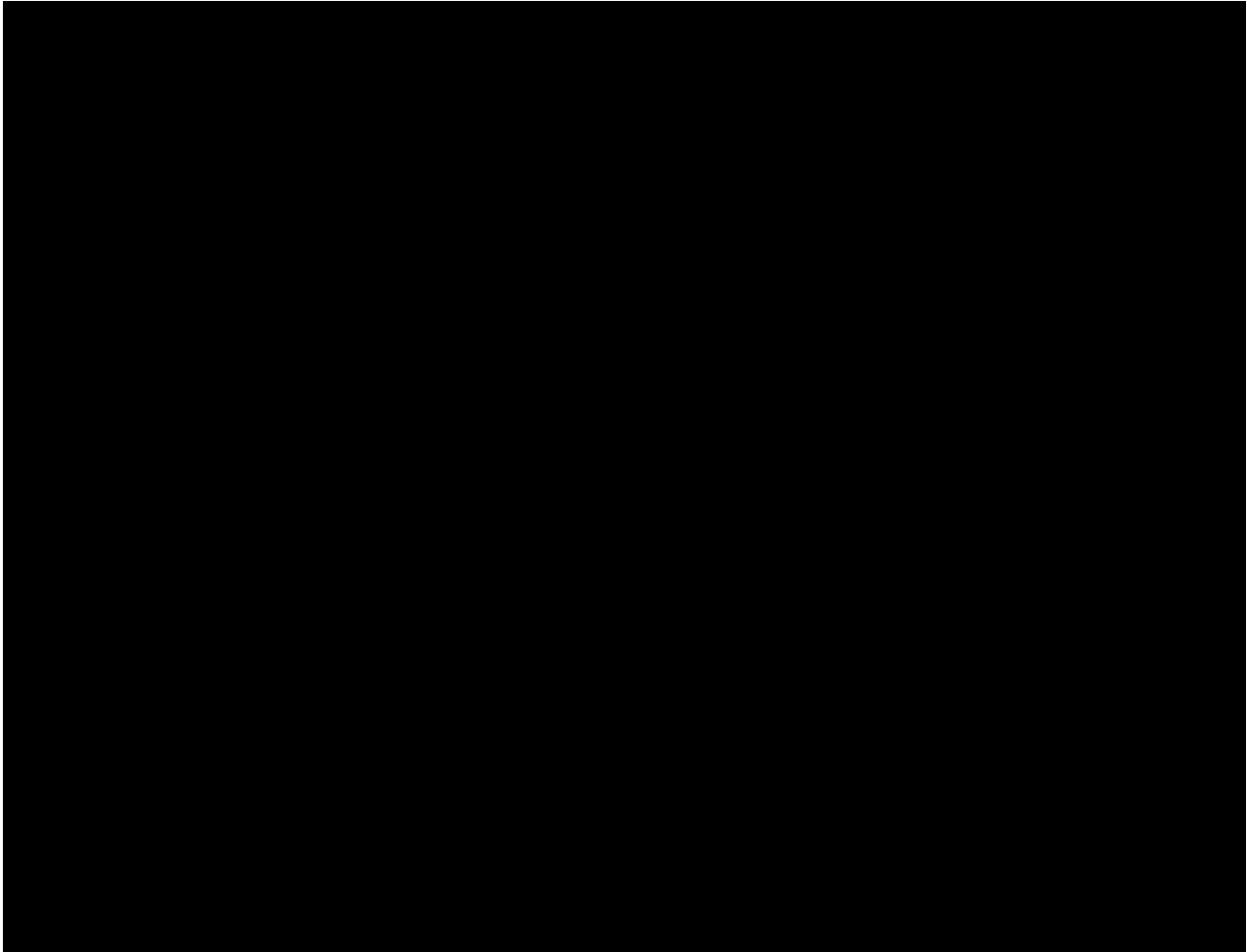


6.4.3 Reduce Bus Dwell Time and Operator interaction

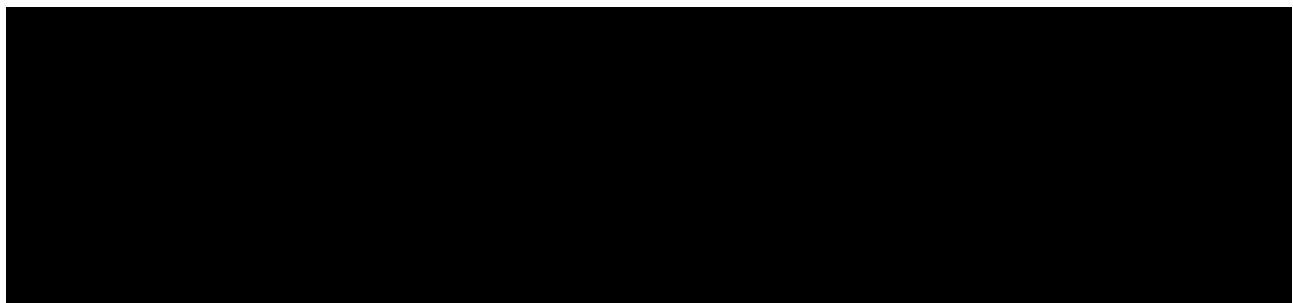


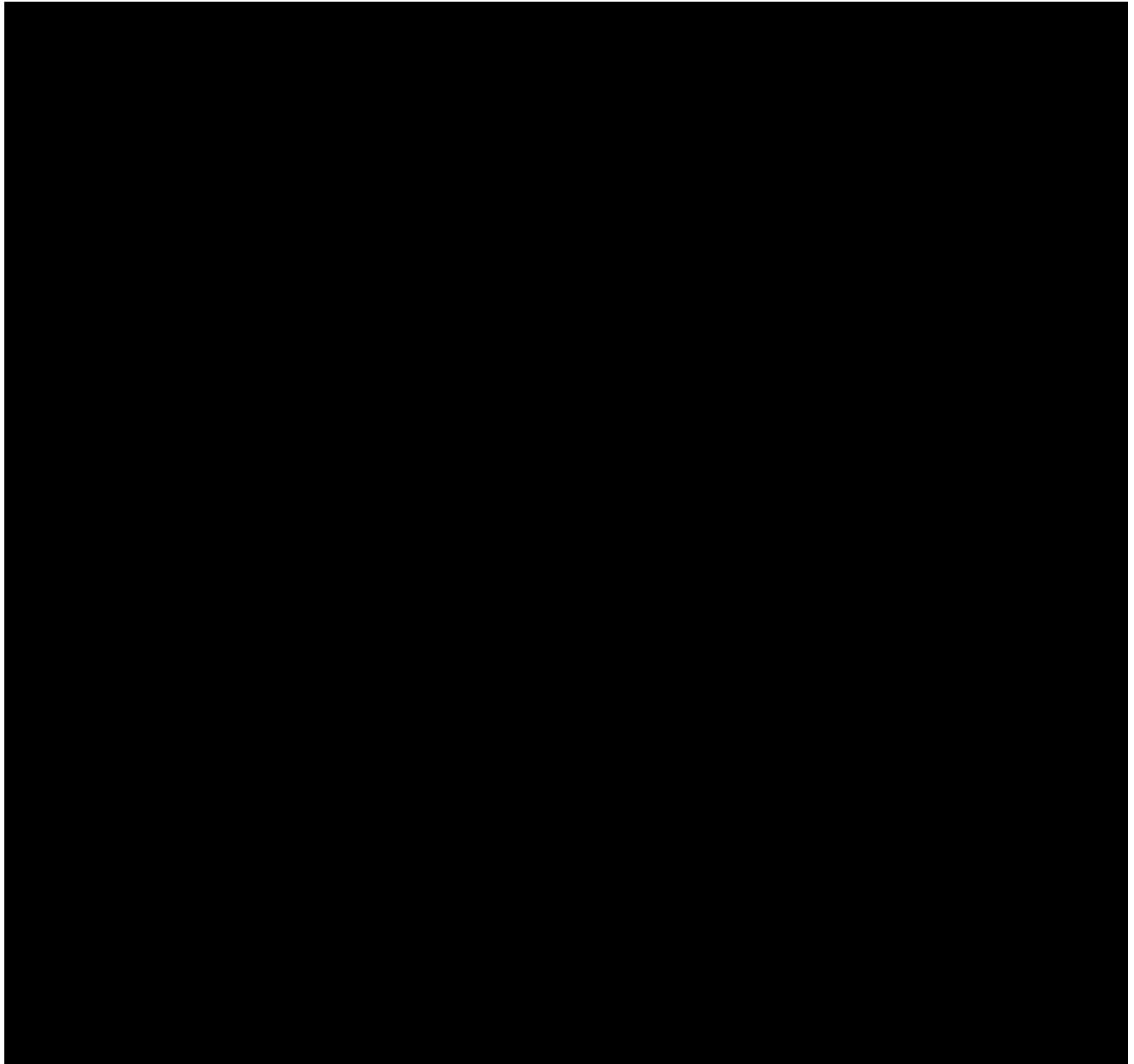
6.4.4 EMV and Other Standards (deleted)

6.4.5 Seamless Operations through Easy Maintainable Devices



6.5 Real Flexibility in Technology – INIT provides Open API's





6.6 Environmental Value – Waste Management

INIT is a socially responsible business partner with a unique approach to fostering sustainability as a part of our company's corporate philosophy. We see transit as intrinsically "green," and have consequently aimed to make direct contributions to our community through an ongoing commitment to sustainability.

6.6.1 Zero Waste Initiative

What began as a simple recycling mission at INIT's corporate office located in Chesapeake, VA rapidly grew into a full-blown strategy to become a certified zero-waste-to-landfill company. Zero-waste-to-landfill means everything we use is reduced, reused, recycled or composted.

6.6.2 Partnership with TFC Recycling



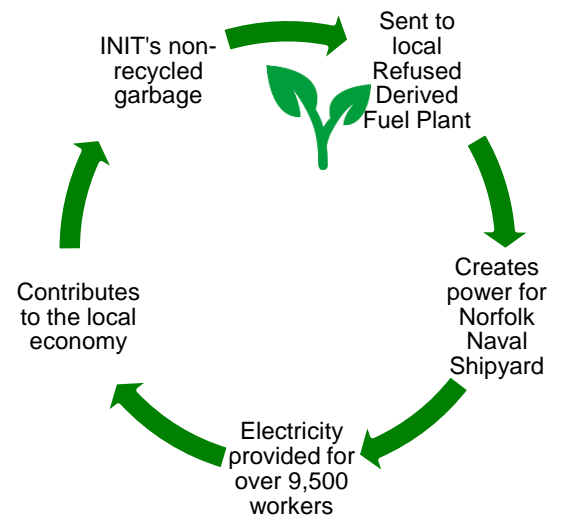
An important step for INIT was to partner with TFC Recycling, a leader in the collection, processing and marketing of recyclable materials and management of solid waste through innovative material recovery. TFC offers a single stream recycling process and provides an economically friendly solution for non-recyclable trash.

Non-recyclable, non-compostable garbage is sent to the Refuse Derived Fuel Plant, a local facility that treats and burns the waste for the creation of energy. This allows us to contribute to the local economy by providing the fuel for electricity to power the Norfolk Naval Shipyard which employs over 9,500 workers.

6.6.3 Community Impact

By the first year, 593 pounds of paper towel usage was eliminated through the use of hand dryers. The impact on the environment is calculated to be the equivalent of 11 trees with an estimated decrease in the company's carbon footprint of 69%.

The zero waste to Landfill Certification also compelled INIT to become a business member signatory on the APTA Sustainability Committee.



6.7 Knowledge Sharing with Engaged Customers

INIT hosts a User Group conference annually as well as Customer Forum and Educational-Instructional webinars and on a monthly basis, these are explained in more detail below.

6.7.1 INIT Working Group

INIT's Working Group meeting have been replace with the Interactive Webinars and Customer Forums described below.

6.7.2 INIT User Group Conference

The INIT User Group Conference is held annually; however, keep in mind that the Conference location alternates between a North American Transit Agency Host location and a European location. The User Group Conference focuses on Managers and Senior Leadership. The topics relate more to strategy and effective application rather than daily usability. If a customer has a maintenance agreement, then up to 4 attendees will have their Conference expenses covered by INIT. After the 4th attendee, all others receive a 10-20% discount on registrations. Any other expenses for additional attendees are carried by the Transit Agency, e.g. hotel, travel and any non-INIT provided meals.



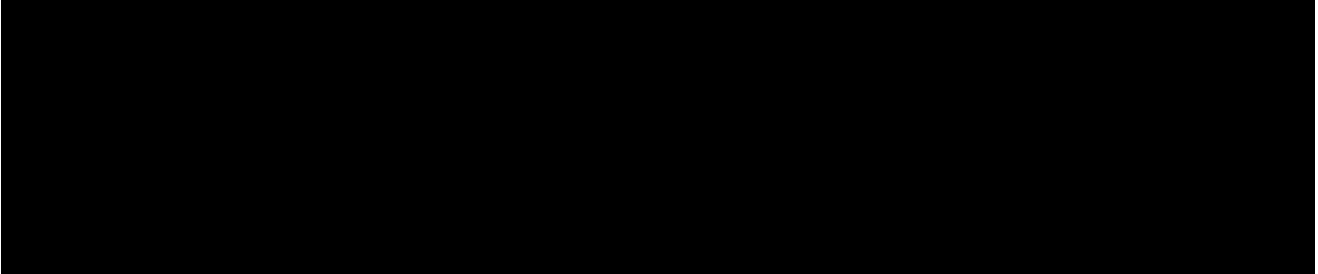
User Group Meeting

6.7.3 Interactive Webinars and Customer Forums

INIT hosts Monthly "20 Minutes with INIT" webinars. This year we are focused on projects. <https://www.initse.com/ende/us/news-events/knowledge-database/articles/2017/20-minutes-with-init-webinars.html>. The monthly webinars cover hot industry topics followed by a question and answer period where you can discuss any operational issues you may want to discuss with INIT engineers as well as your agency peers. Check out the webinar schedule and register to

automatically receive an invite! In addition to the Webinars we also host an INIT Customer Forum – here we store webinar recordings, presentations and such. This is for customers to talk to each other. <https://forum.initusa.com>

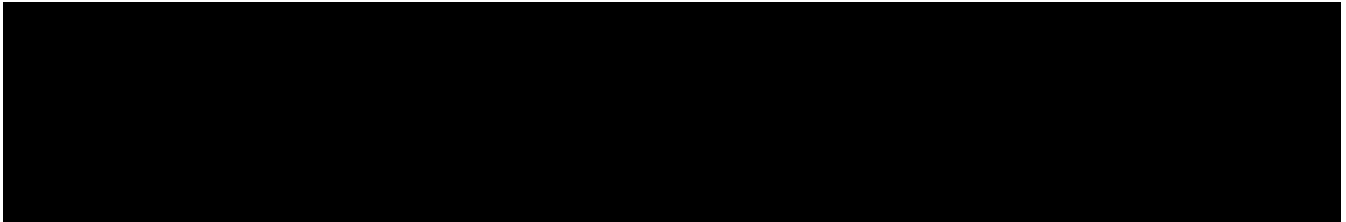
6.8 Minimizing Costs, Risks and Delivery Time



6.9 Local to Seattle – INIT knows the Puget Sound region

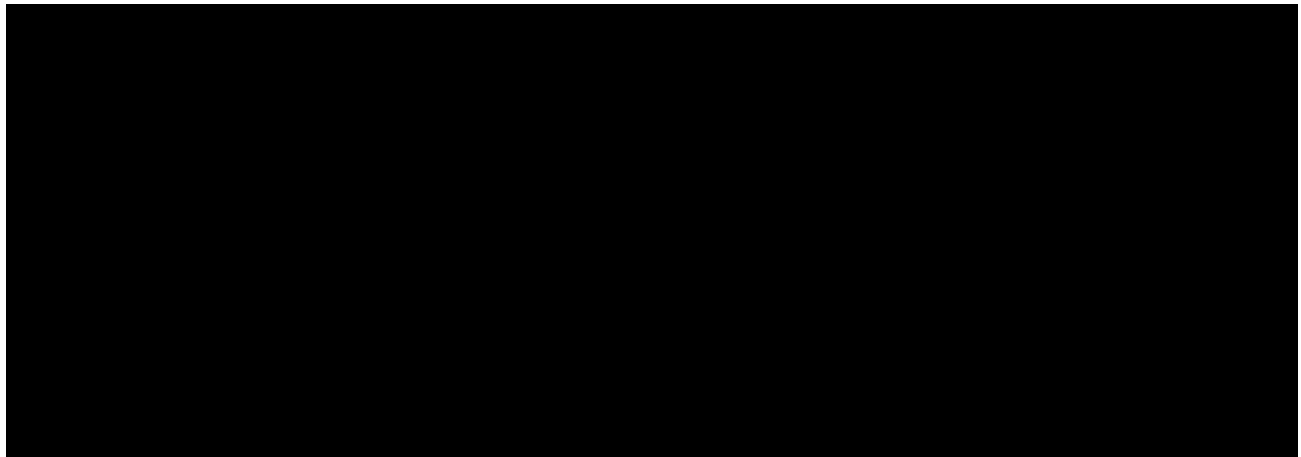
INIT's Western Regional office is located in the heart of Seattle at Pioneer Square. The office was established here more than 10 years ago and serves as the main office for all INIT personnel working on projects at Seattle area Transit Agencies and in the western USA.

6.10 Future Oriented – Constant Refresh of Ideas



6.11 ORCA Next Phase and Potential Future Projects

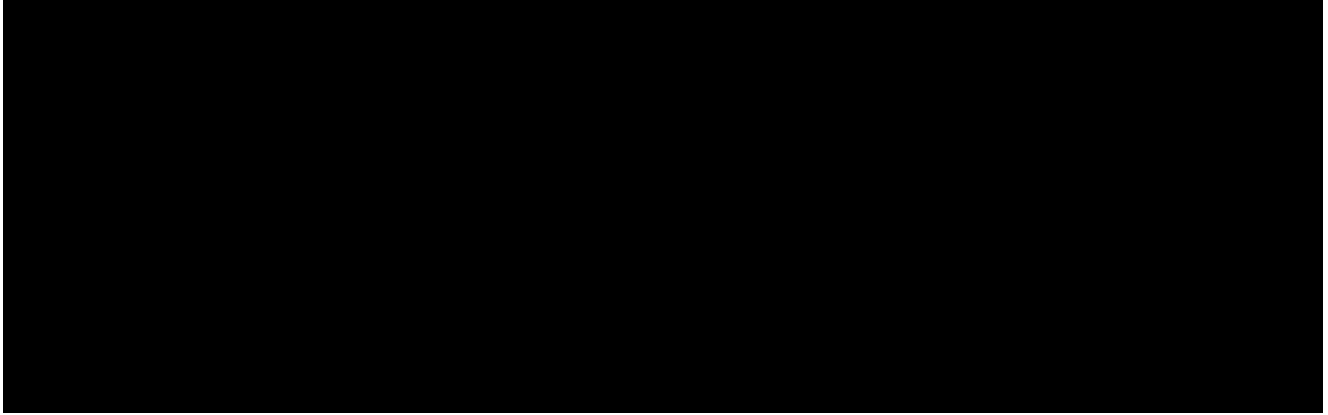
6.11.1 Expansion to Other Agencies





6.11.2 Full Vanpool Integration

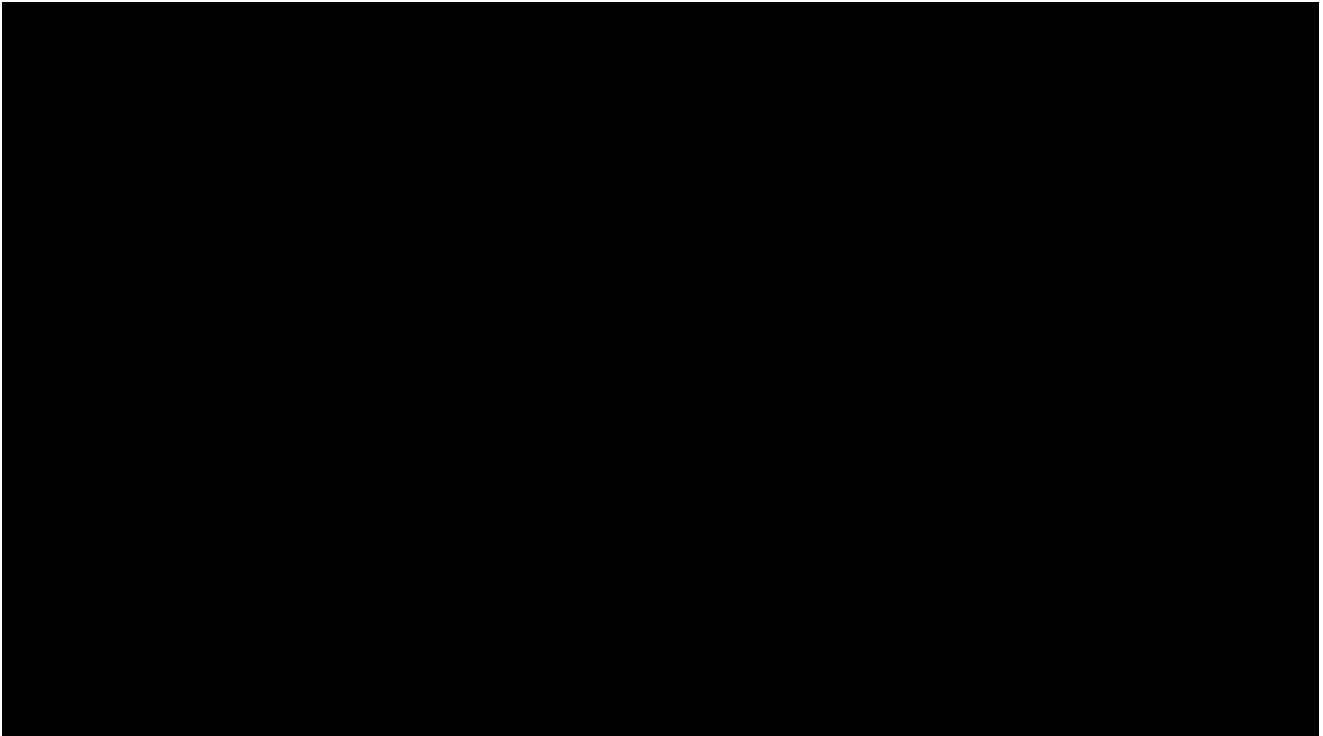
6.11.3 Paratransit Integration with Scheduling Systems

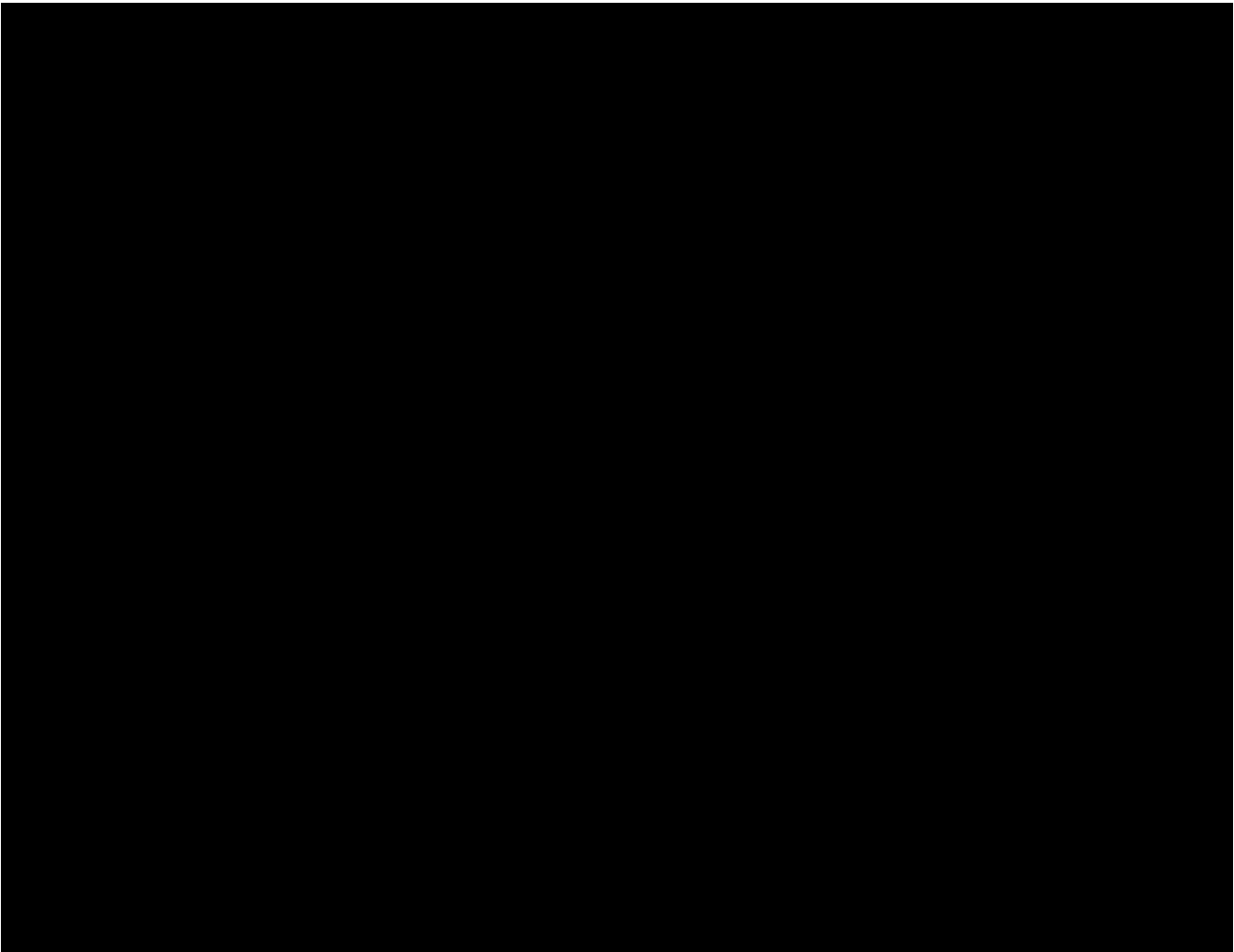


6.11.4 Acceptance of Open Payments

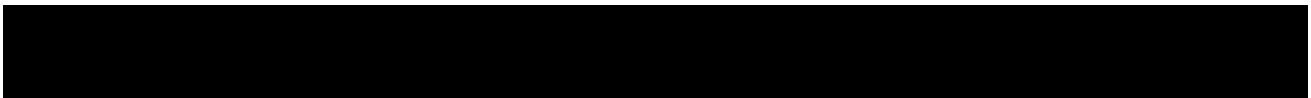


6.11.5 Limited Use Fare Media

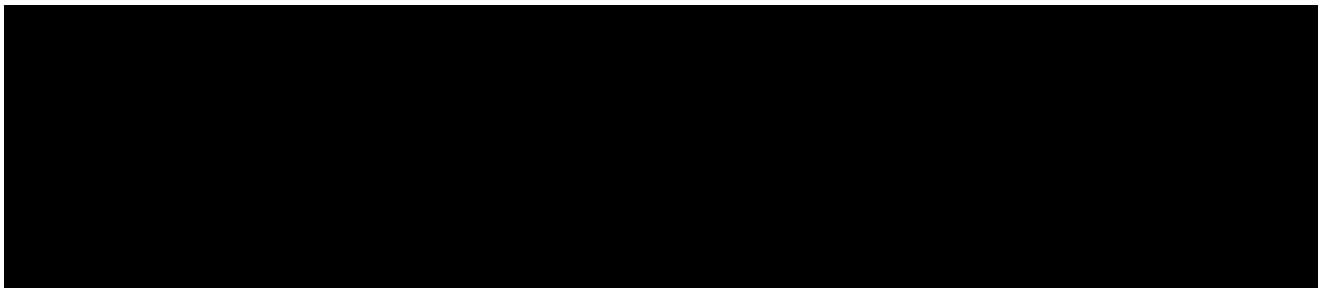




6.11.7 Fare capping and other loyalty programs



6.11.8 Integration with Other Transportation Providers



6.11.8.1 Luxembourg Bike Locker integration

For the Luxembourg project INIT realized an integration with the loan bike locker provider. Every bike locker has a validator installed. Customers that want to use the bike lockers load a special bike locker pass to their card.

Once the card is tapped on the validator and a valid product is available, the validator communicates with the electronic door lock and opens the door.



Luxembourg Bike Locker integration

6.11.8.2 Portland/Vancouver Bike Share and Bike Locker integration

For the HOP Fastpass project in the Portland area, INIT is working with TriMet and the local bike share provider to provide an integration to their bike share system (Biketown) and to the bike lockers provided by TriMet.

The bike locker integration is very similar to the Luxembourg integration project (see last chapter). The difference is that a newer validator model (PROXmobil3 instead of PROXmobil2) and that an account based instead of a card based approach will be used.

For the bike share integration with Biketown, the HOP card will be used as the identifier to unlock the bikes. Instead of tapping the Biketown card, customers will be able to register their HOP Fastpass to their Biketown account. After the registration process the HOP Fastpass can be used as the account identifier when renting a bike. Payment will still be handled in the Biketown system.

Commitment to and Compliance with Equal Employment Opportunity Law

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CONFIDENTIAL SECTIONS:

7.1 Commitment to Diversity

7.2 Diversity Efforts and Commitment

7.2.4 Current Diversity Metrics

7.2.5 Linda Keith – Responsible for overseeing adherence to EEO laws

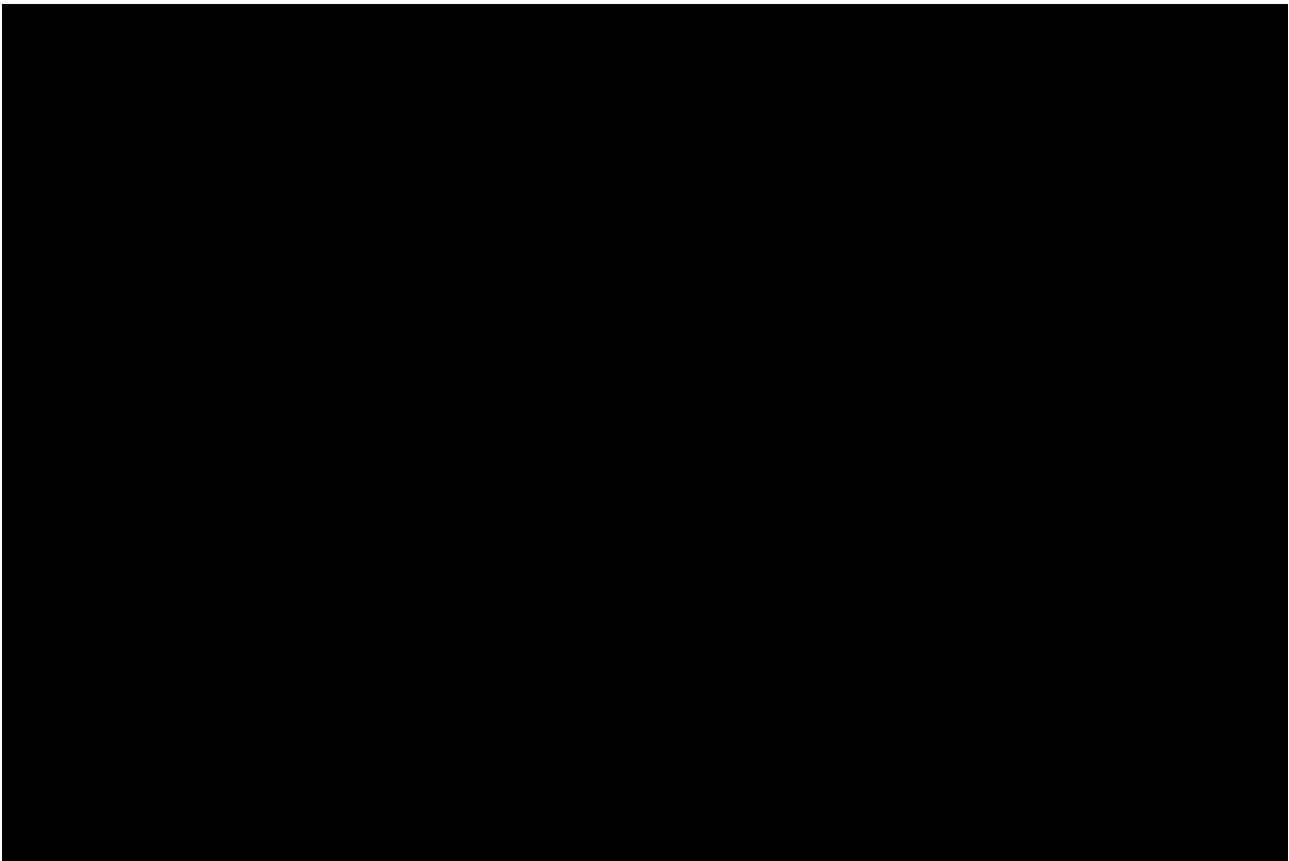
7.3 Init's Equal Employment Opportunity / Affirmative Action Policy



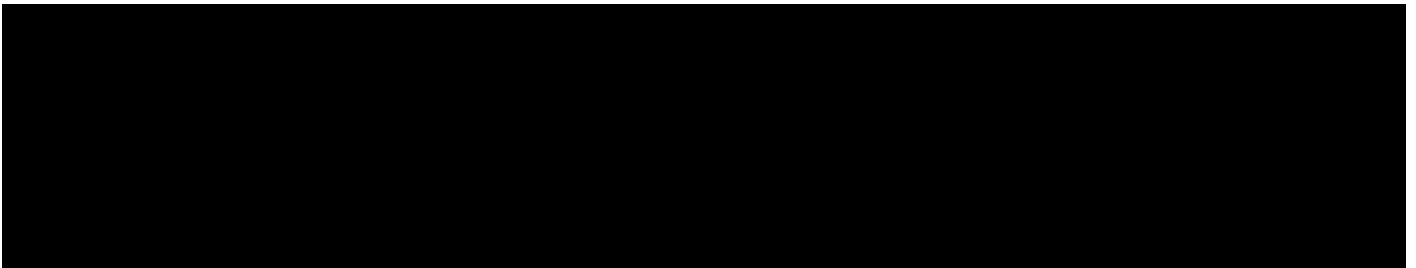
7 INIT's Workforce: A Commitment to Inclusion and Diversity

The continued excellence of INIT is largely dependent upon our ability to attract, develop, and retain highly skilled, talented, and motivated employees. An essential element in maintaining this is the recognition of the value of a diverse workforce. Characteristics such as age, culture, ethnicity, gender, race, religious preference, sexual orientation, gender expression, and the expression of unique philosophies and ideas provide the opportunity to better understand each other. This understanding will strengthen the efficiency and productivity of the workforce, whose primary objective is to provide excellent service to the Company.

7.1 Commitment to Diversity



7.2 Diversity Efforts and Commitment





7.2.1 INIT, an Equal Opportunity Employer

On or about November 1, 2017 INIT implemented an Equal Employment Opportunity/Affirmative Action Plan for Individuals with Disabilities, Protected Veterans, Minorities and Females. All of these documents are available upon request; however, due to the confidential nature of some of the salary data contained in these documents, we ask that your EEO office reach out to Linda Keith, our Vice President and Chief Financial Officer who is responsible for overseeing Human Resources and INIT's adherence to EEO laws and policies. Ms. Keith can be reached at 757-413-9100 extension 307 or emailed at LKeith@INITusa.com.

These documents will ensure what already is an established policy within INIT, namely equal employment opportunity for all person, in all phases of INIT's operations, without regard to race, religion, color, sex, sexual orientation, gender identity, national origin, age, physical or mental disability, or status as a disabled veteran or other protected veterans.

7.2.2 How INIT meets our EEO Objectives

INIT makes every effort to ensure that we provide equal employment opportunities are accomplished by endeavoring to meet the following goals:

- Attract and retain qualified individuals from diverse backgrounds who are committed to the continued excellence of INIT
- Encourage an environment that fosters a diverse workforce in terms of age, culture, ethnicity, gender, race, religious preference, sexual orientation, gender expression, and the expression of unique philosophies and ideas
- Provide all employees the opportunity for professional development and personal growth
- Expect that all employees will treat each other with dignity and respect
- Uphold all applicable federal, state, and local laws and regulations

INIT provides "EEO Tag Line" in all solicitations for applicants; in addition an EEO clause is implemented in our documents such as e.g. our purchase orders. With our soon to be implemented online hiring process we will notify State ESDS of hiring opportunities.

Recently, we've started a new college hire program which takes advantage of regional higher education institutions and their ability to meet our growing needs. In 2018 we expect to expand this to an internship program that targets the regions youth who want to combine their skills and their passions into learning more about a career in transit technology. We have, and will continue to apply the same commitment to a diverse workforce and an inclusive culture to these programs.

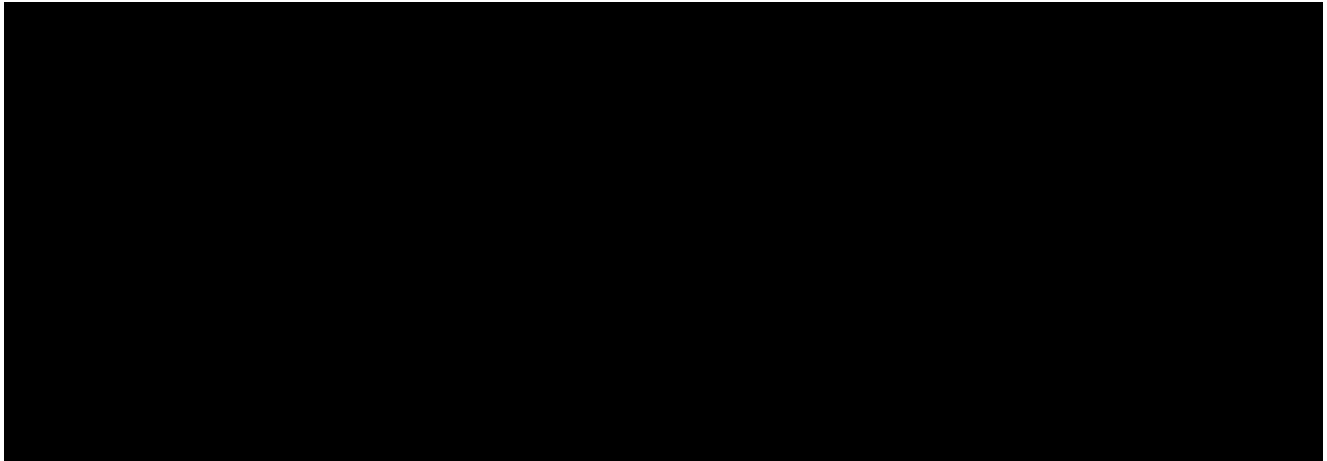
With this experience and dedication to a team which brings out the best in all of our collective backgrounds, we feel that we can both be respectful of one's background but also leverage it for project successes.



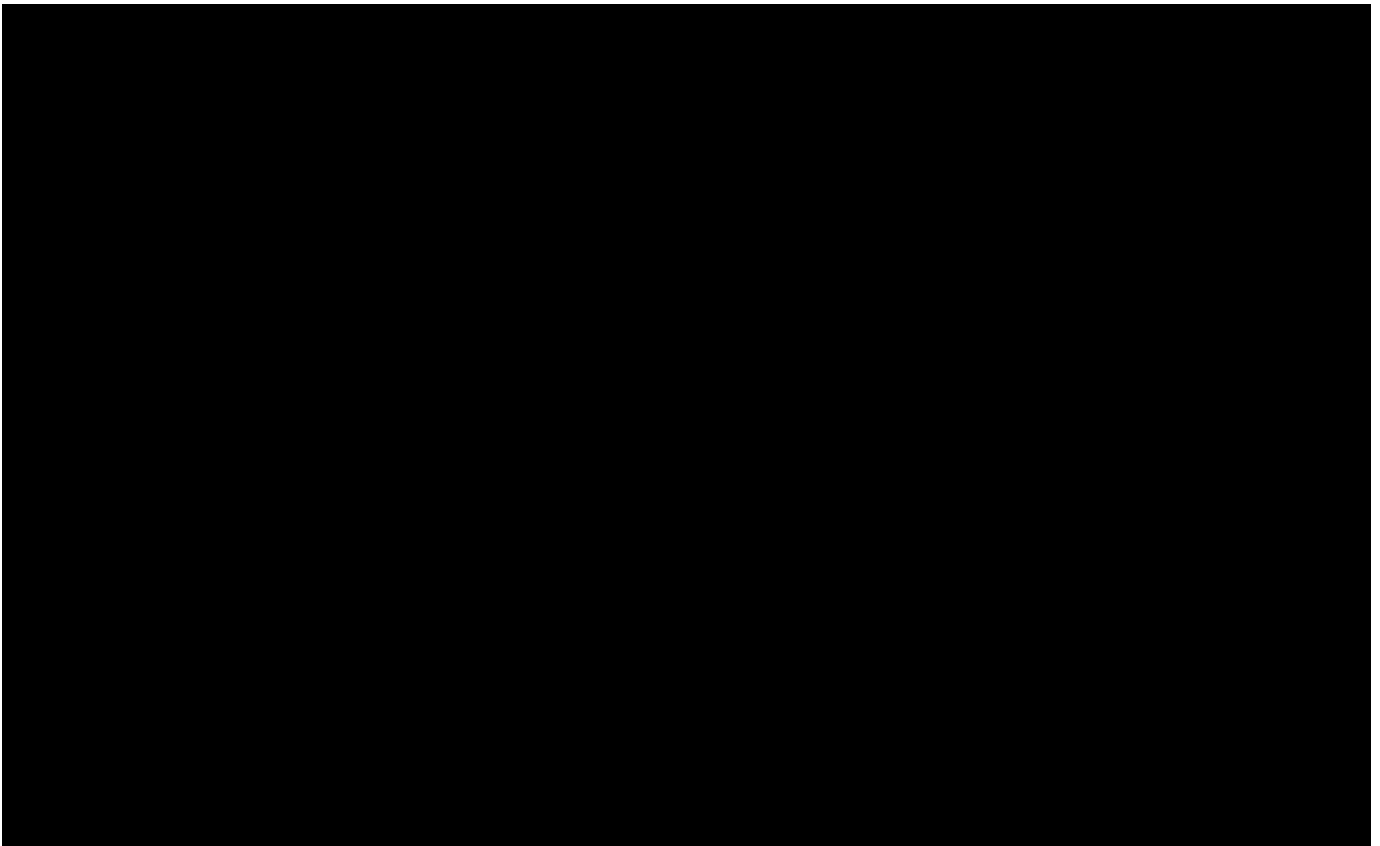
7.2.3 How INIT Creates Diverse Teams

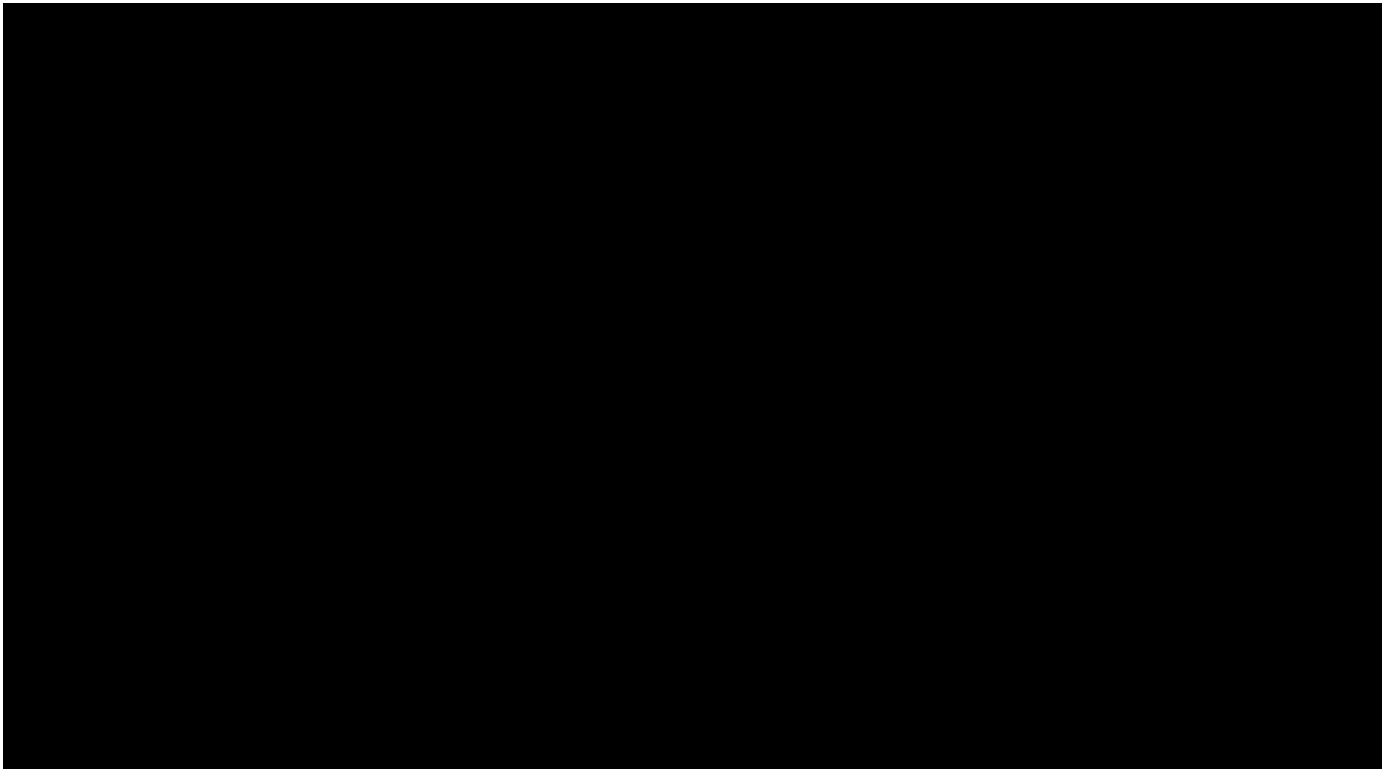
INIT strives to bring our EEO goals into the creation of our project teams. On similar projects in size and scale to ngORCA, we do this by ensuring a team reflective of the culture and diversity mirroring that of our client. This involves hiring in the local area and bringing resources to live in the area for the duration of the project. This works to ensure that cultural boundaries can be removed, and that our teams do their best to reflect the region in which they are working.

7.2.4 Current Diversity Metrics



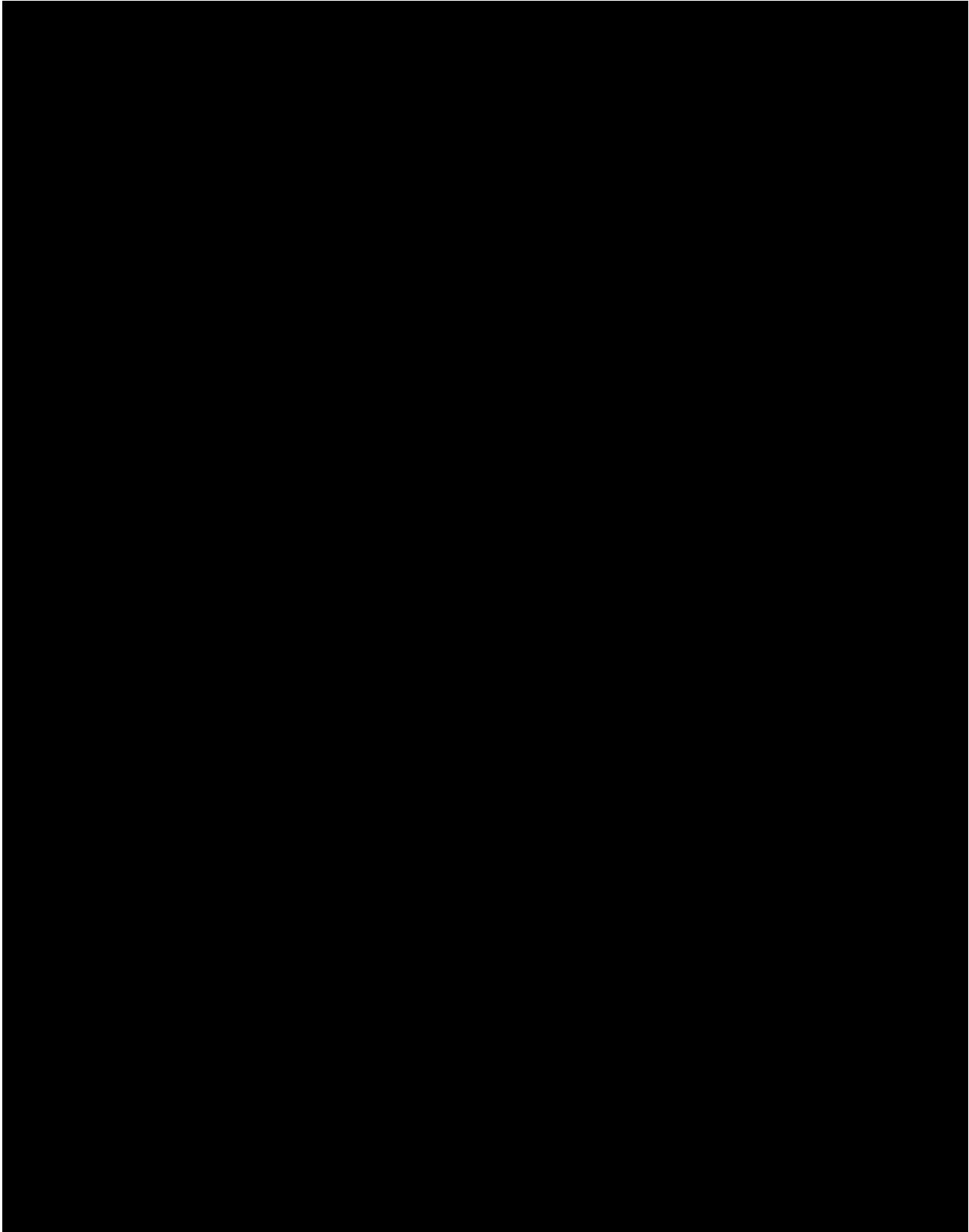
7.2.5 Linda Keith – Responsible for overseeing adherence to EEO laws







7.3 INIT's Equal Employment Opportunity / Affirmative Action Policy



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CONFIDENTIAL SECTIONS:

8.1 Small Businesses and DBE's Contacted

8.1.1 Paula Okunieff, President - GO Systems and Solutions LLC, Business Analyst

8.1.2 Anthro-Tech – UI/UX Consultant

8.1.3 ESP Enterprises – Vehicle, Wayside Validators and VM Installation Services

8.1.4 West Sound Workforce – CST Installers and more

8.1.5 Babinec Consulting – Technical Writer

8.1.6 Edco Incorporated – Machine Shop

8.3 Approach for Monitoring/Mentoring and Supporting

8.5 DBE/Small Business Participation

8 INIT's Contribution towards Progressive Business Practices

INIT has a history of working with DBE's to provide goods and services on many of our Automated Fare Collection and Computer Aided Dispatch projects. We typically search for DBE's for roles such as Assistant Project Managers, Electrical Contractors, Vehicle Installation Services and more.

For this ngORCA opportunity, we have reached out to local businesses as described below.

Firstly, we searched the <http://www.omwbe.wa.gov/directory-of-certified-firms> website looking for firms in the greater Seattle area that we could reach out to become part of the team. We identified three (3) firms representing Electrical Contractors, Fleet Maintenance services, Traffic signal and street lighting contractors. Detailed in Form 4 are the results of our contact with these firms.

Secondly we called contacted the SBA's Seattle District Office at 206-553-7310 for advise on contacting other DBE's in the greater Seattle area. We were lead to the Washington Procurement Technical Assistance Center.

Finally we contacted Ms. Kate Hoy a Government Contracting Specialist with the Washington Procurement Technical Assistance Center. Working with Ms. Hoy, we were able to post the following request to send with their next email newsletter blast.

"INIT Innovations in Transportation is looking for qualified DBE's and SBA's for a project that will commence 4th quarter 2018. This is a large opportunity in the Seattle area requiring many skills and talents. We realize that firms may not have specific experience in the areas listed below but we are willing to train, mentor and supervise firms with applicable experience. Services we have identified that may be useful include:

- Assistant Project Managers
- Server Test facility electrical build out
- Administration overhead such as receptionist and cleaning services
- Technical writers
- Oracle consulting
- Building lessee
- Technical documentation requiring CAD skills
- Software test automation (scripts with release reports)
- Network Architecture design
- Vending Machine Installation and Testing
- Installation of equipment and devices on vehicles
- Voice Talent
- Accounting services with Oracle experience

Please reply to scraft@initusa.com. In your reply, please provide contact information, DBE status, website, office location, number of full –time employees, certifications, specific area of expertise from the list above along with specific experience that are applicable. Failure to provide the above information will be considered unresponsive. We look forward to receiving your information no later than October 1st, 2017."

We were contacted by 6 firms as a result of our ad. The results of our subsequent contact with these firms is detailed in Form No. 4.

In addition, we used personal contacts to look for DBE firms that could fill the requirement for a UI/UX consultant, Business Analyst and Installation Services.

A weakness cited was:

- Some of the firms contacted appear to be a stretch for qualifying for Form 4:
- 1 cleaning services (also not DBE)
- 4 CAD services (not needed)
- One "provided company information":
- One just checked website

INIT worked hard to identify potential DBE's and initially identified many efforts as can be seen in the ad we placed shown above. If a company contacted us or we reached out to a company due to our own research, they were included on Form 4. Some companies that contacted us were simply not qualified and we determined that the logistics of outsourcing CAD services was not in the best interest of a successful project.

In addition, in this resubmittal, we went back and identified that we could use the services of a contract manufacturer and a technical writer. You will see Babinec Consulting and Edco Incorporated added below.

It should be noted that Anthro-tech, West Sound Workforce and Babinec Consulting are local to Seattle and Endo Incorporated is in nearby Mount Vernon.

Please see an additional Form 4 completed (5 of 5)

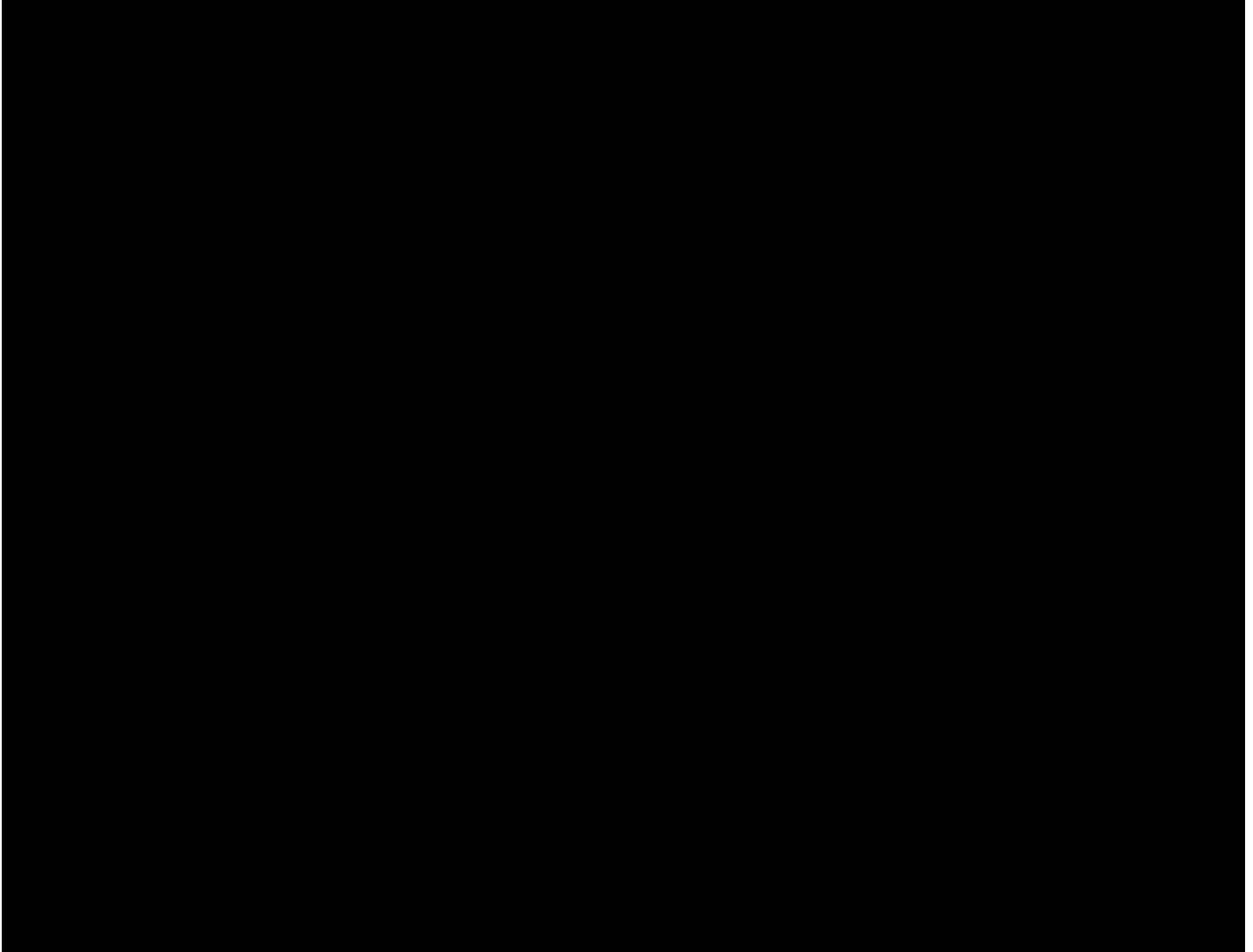
8.1 Small Businesses and DBE's Contracted

8.1.2 Anthro-Tech – UI/UX Consultant

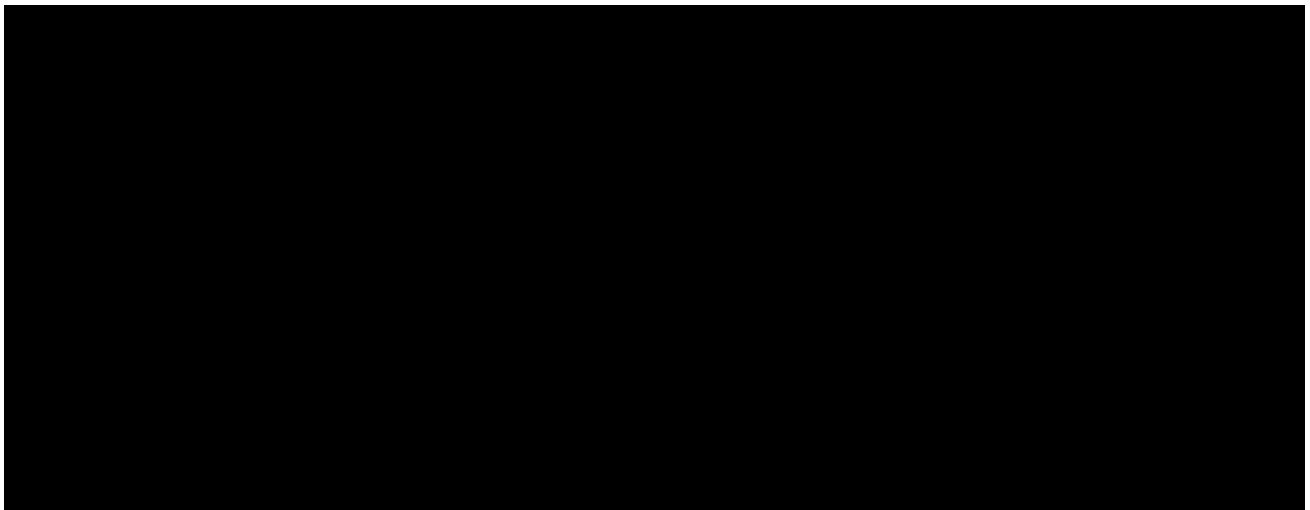
8.1.3 ESP Enterprises – Vehicle, Wayside Validators and VM Installation Services

8.1.4 West Sound Workforce – CST Installers and more

8.1.5 Babinec Consulting – Technical Writer



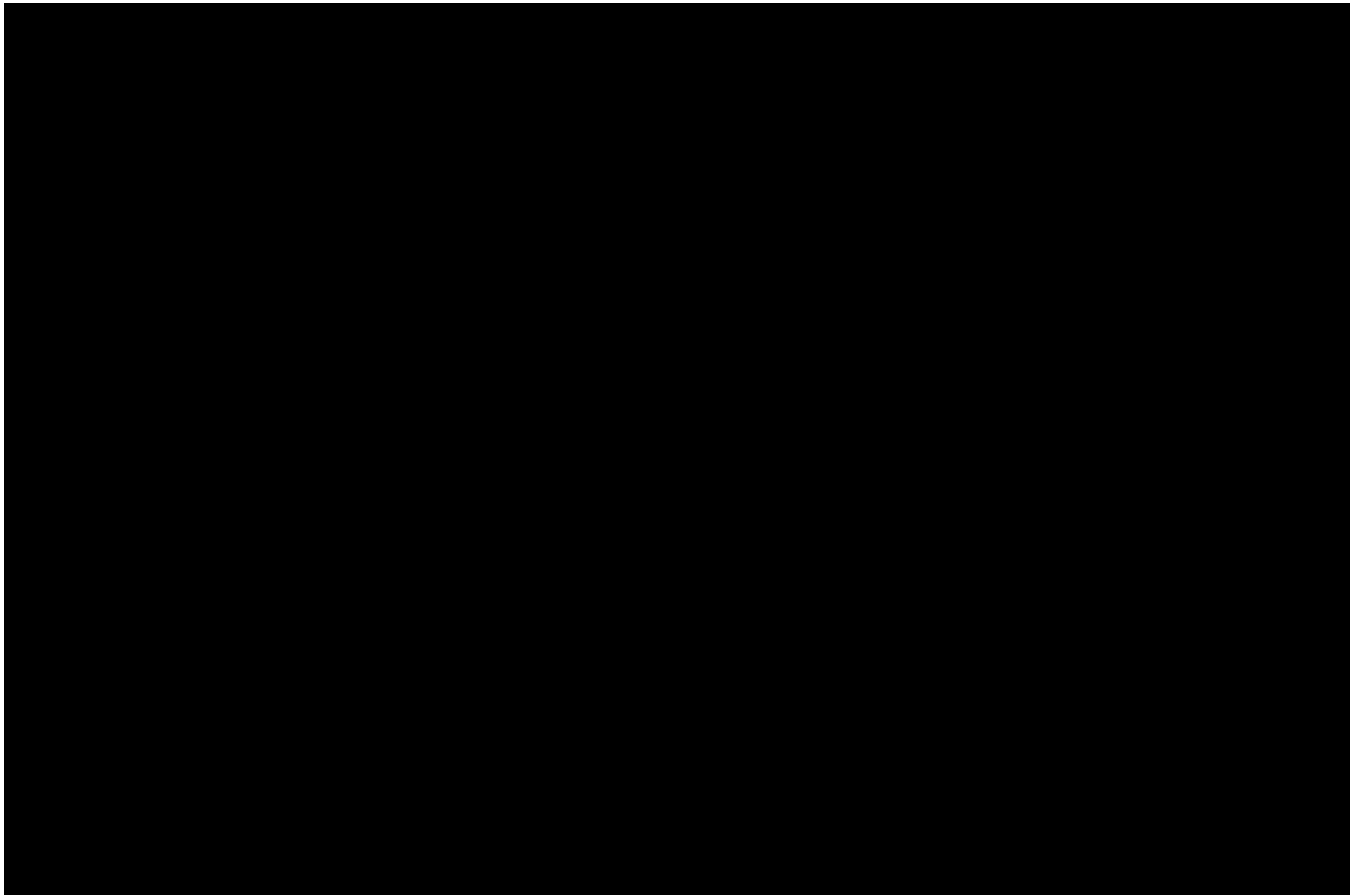
8.1.6 Edco Incorporated – Machine Shop



8.2 Experience and Approach to managing diverse teams

As leading providers of Intelligent Transit Systems, INIT's Project Managers and Eric Linxweiler, our Western Regional Director, have extensive experience working with Small Businesses on projects of similar size. As the prime contractor, INIT frequently shares resources with our subcontractors. This includes office space, transportation, test equipment, and specialty tools while always providing the bulk of materials so that we can maintain quality.

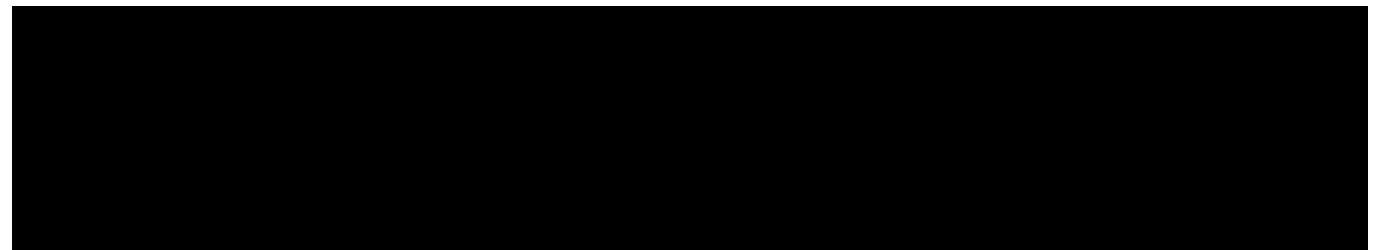
8.3 Approach for Monitoring/Mentoring and Supporting



8.4 Responsibility for overseeing success

Eric Linxweiler, INIT's Western Regional Director based out of our Seattle office is responsible for engaging and overseeing our small business efforts as they relate to the ngORCA project. Amy Gardner, our Implementation Lead will provide direct supervision for Paula.

8.5 DBE/Small Business Participation



Certificate Of Completion

Envelope Id: 26BF6B95BC904605A5A8570AB5583CFA
 Subject: Sound Transit contract for signature RP 0119-17
 Source Envelope:
 Document Pages: 1119
 Certificate Pages: 2
 AutoNav: Enabled
 Envelopeld Stamping: Enabled
 Time Zone: (UTC-08:00) Pacific Time (US & Canada)

Status: Completed

Envelope Originator:
 Ashley Bowman
 401 S Jackson St
 Seattle, WA 98104
 ashley.bowman@soundtransit.org
 IP Address: 162.248.186.11

Record Tracking

Status: Original 9/28/2018 3:52:18 PM	Holder: Ashley Bowman ashley.bowman@soundtransit.org	Location: DocuSign
Security Appliance Status: Connected	Pool: Central Puget Sound Regional Transit Authority	
Storage Appliance Status: Connected	Pool: Central Puget Sound Regional Transit Authority	Location: DocuSign

Signer Events

Linda Keith
 lkeith@initusa.com
 Vice President & CFO
 Security Level: Email, Account Authentication (None)

Signature

DocuSigned by:

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 Signature Adoption: Pre-selected Style
 Using IP Address: 108.11.185.86

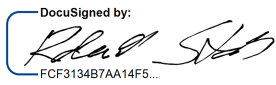
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Electronic Record and Signature Disclosure:

Not Offered via DocuSign

Roland Staib
 rstaib@initusa.com
 Pres& CEO
 Security Level: Email, Account Authentication (None)

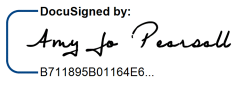
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Electronic Record and Signature Disclosure:

Not Offered via DocuSign

Amy Jo Pearsall
 amy.pearsall@soundtransit.org
 Security Level: Email, Account Authentication (None)


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Electronic Record and Signature Disclosure:

Not Offered via DocuSign

Mike Harbour
 mike.harbour@soundtransit.org
 Security Level: Email, Account Authentication (None)

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Electronic Record and Signature Disclosure:

Signer Events	Signature	Timestamp
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Not Offered via DocuSign

In Person Signer Events	Signature	Timestamp
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Editor Delivery Events	Status	Timestamp
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Agent Delivery Events	Status	Timestamp
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Intermediary Delivery Events	Status	Timestamp
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Certified Delivery Events	Status	Timestamp
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Eric Linxweiller
elinxweiler@initusa.com

Security Level: Email, Account Authentication
(None)

VIEWED

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Viewed: 9/28/2018 4:33:11 PM

Electronic Record and Signature Disclosure:
Not Offered via DocuSign

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Notary Events	Signature	Timestamp
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Envelope Summary Events	Status	Timestamps
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Payment Events	Status	Timestamps
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